Final Environmental Assessment

Military Family Housing Privatization at Keesler Air Force Base, Mississippi

Prepared for

Keesler Air Force Base

February 2010

Report Documentation Page

Form Approved
OMB No. 0704-0188

1. REPORT DATE	2. REPORT TYPE	3. DATES COVERED
FEB 2010		**00-00-2010 to 00-00-2010**

4. TITLE AND SUBTITLE	5a. CONTRACT NUMBER
Final Envi ronmental Assessment: Military Family Housing Privatization at Keesler Air Force Base, Mississippi	5b. GRANT NUMBER
	5c. PROGRAM ELEMENT NUMBER
6. AUTHOR(S)	5d. PROJECT NUMBER
	5e. TASK NUMBER
	5f. WORK UNIT NUMBER
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) **CH2M HILL,115 Perimeter Center Place, Suite 700,Atlanta,GA,30346-1278**	8. PERFORMING ORGANIZATION REPORT NUMBER
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)	10. SPONSOR/MONITOR'S ACRONYM(S)
	11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION/AVAILABILITY STATEMENT
Approved for public release; distribution unlimited

13. SUPPLEMENTARY NOTES

14. ABSTRACT

15. SUBJECT TERMS

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT	b. ABSTRACT	c. THIS PAGE			
unclassified	**unclassified**	**unclassified**	**Same as Report (SAR)**	**98**	

Final Finding of No Significant Impact:

Keesler Air Force Base, Mississippi

Military Family Housing Privatization Environmental Assessment

Keesler Air Force Base (Keesler AFB) has prepared an Environmental Assessment (EA) (March 2009) that evaluates the potential environmental and socioeconomic impacts associated with the privatization of Military Family Housing (MFH) at Keesler AFB. MFH is currently owned, operated, and managed by Keesler AFB. The March 2009 EA is incorporated into this Finding of No Significant Impact by reference.

Description of the Proposed Action

The Proposed Action is the privatization of MFH, which includes the transfer of management and operations of MFH to a private sector project owner (PO) through a 50-year lease. The Proposed Action consists of:

- Privatization of the housing units on Parcel A (Thrower Park).
- Privatization of the housing units on Parcel B (West Falcon).
- Privatization of the housing units on Parcel C (East Falcon).
- Privatization of the housing units on Parcel D (Bay Ridge).
- Privatization of the Sandhill Landing housing units in Gautier, MS.

The Sandhill Landing housing units were recently acquired by Keesler AFB from the U.S. Navy. The PO would own the housing units and utility infrastructure, but the U.S. Air Force would retain ownership of the land. The PO would receive newly constructed housing on Parcels A - D and housing constructed after the passing of Hurricane Katrina at Sandhill Landing.

No-Action Alternative

Under the No-Action Alternative, Keesler AFB would retain management and ownership of housing units and utility infrastructure and no assets would be privatized. Life-cycle costs for ownership of housing would remain with the Air Force.

Environmental Consequences

Privatization Alternative

Under the Privatization Alternative, the U.S. Air Force would retain ownership of the land but would transfer ownership of the housing units and structures on Parcels A - D and the Sandhill Landing housing units to a PO. The land would be leased to the PO for 50 years.

The Proposed Action would have no potential to impact air space, land use, and geology. There would be minor temporary impacts to noise, geomorphology, soil, hydrology, water quality, biological resources, safety and occupational health, air quality, hazardous materials, cultural resources, socioeconomics, environmental justice, traffic flow, and utility infrastructure. Use of appropriate best management practices (BMPs) during construction and demolition and prompt revegetation of disturbed areas would minimize the potential for erosion, increased stormwater runoff, and sedimentation to impact hydrology and water quality.

There would be no changes to the privatized housing on Keesler AFB or Sandhill Landing, so no direct impacts to sensitive species would be anticipated. When the U.S. Navy constructed housing at Sandhill Landing, the U.S. Fish and Wildlife Service issued a Biological Opinion containing Reasonable and Prudent Measures (RPMs) and Terms and Conditions (T&Cs) that the U.S. Navy must implement to offset impacts to designated critical habitat for the Mississippi Sandhill Crane. The obligation to implement the RPMs and T&Cs transferred to Keesler AFB from the Navy when the housing units were acquired. After privatization, Keesler AFB and the PO would continue to implement the RPMs and T&Cs, as required by the Biological Opinion, which would make any impacts to the Mississippi Sandhill Crane less than significant.

No-Action Alternative

Under the No-Action Alternative, Keesler AFB would retain management and operational duties for the housing units and utility infrastructure. There would be no change from existing conditions and no impacts would occur. Military families would continue to live in Keesler AFB housing and life-cycle costs for ownership of housing would remain with the Air Force. Keesler AFB would continue to implement the RPMs and T&Cs, as required by the Biological Opinion, under the No-Action Alternative.

Conclusion

Subsequent to the public notice period, a potential for soil contamination was identified in the West Falcon Housing Area. Soil samples were collected from the area and analyzed. Based upon the results of sampling, it was determined that potential contaminants do not exceed background levels. Therefore, no revisions were made to the EA and a second public comment period is not warranted.

The attached EA was prepared pursuant to 32 Code of Federal Regulations 989 and U.S. Council on Environmental Quality regulations (Title 40, U.S. Code, Parts 1500-1508) for implementing the procedural requirements of the National Environmental Policy Act. The finding of this EA is that the privatization alternative would have no significant impact on the human or natural environment. Accordingly, Keesler AFB may select the privatization alternative for implementation. A Finding of No Significant Impact is issued and no Environmental Impact Statement is required.

Restrictions

All the RPMs and T&Cs for Mississippi Sandhill Cranes, as required by the U.S. Fish and Wildlife Service Biological Opinion, must be implemented.

Date: 18 Feb 2010

IAN R. DICKINSON
Brigadier General, USAF
Commander, 81st Training Wing

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Acronyms and Abbreviations

ACM	Asbestos-containing material
AETC	Air Force Education and Training Command
AFB	Air Force Base
AFI	Air Force Instruction
AICUZ	Air Installation Compatible Use Zone
AST	Aboveground storage tank
BCC species	Bird species of conservation concern
BO	Biological Opinion
BMP	Best management practice
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CFR	Code of Federal Regulations
CWA	Clean Water Act
dB	Decibels
dBA	A-weighted decibel scale
DoD	Department of Defense
EA	Environmental Assessment
EO	Executive Order
ERP	Environmental Restoration Program
ESA	Endangered Species Act
FamCamp	Family Camp
FHWA	Federal Highway Administration
FR	Federal Register
HM	Hazardous Materials
HW	Hazardous Waste
Hwy	Highway
I	Interstate
LBP	Lead-based paint
Ldn	Day-night averaged sound level
MBTA	Migratory Bird Treaty Act
MDEQ	Mississippi Department of Environmental Quality

MFH	Military Family Housing
MSA	Metropolitan Statistical Area
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
OSHA	Occupational Safety and Health Administration
PO	Project Owner
PSD	Prevention of Significant Deterioration
RCRA	Resource Conservation and Recovery Act
RPM	Reasonable and prudent measure
SARA	Superfund Amendments and Reauthorization Act of 1986
SFHA	Special Flood Hazard Area
T&C	Terms and Condition
TRW	Training Wing
U.S.	United States
USAF	U.S. Air Force
USC	U.S. Code
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USN	United States Department of the Navy
UST	Underground storage tank
WQA	Water Quality Act

1.0 Purpose and Need for Action

1.1 Background

Keesler Air Force Base (AFB) is located within the city limits of Biloxi, Harrison County, Mississippi ([MS], Figure 1-1). The Keesler AFB workforce is approximately 11,200, including approximately 6,900 military personnel. Keesler AFB occupies approximately 1,678 acres and includes primarily improved and semi-improved grounds. Keesler AFB is surrounded on three sides (east, south, and west) by residential and commercial areas. The northern boundary of Keesler AFB coincides with the shoreline of the Back Bay of Biloxi, an inland extension of the Gulf of Mexico. The southern boundary of the installation is approximately 0.5 mile north of the Mississippi Sound and the shoreline of the Gulf of Mexico. U.S. Highway 90 parallels the southern border of the installation and provides access to Interstate (I) 10.

1.1.1 Military Mission

Keesler AFB is a component of the United States Air Force (USAF) Air Education and Training Command (AETC) and is responsible for providing quality training and education of Air Force personnel. Keesler AFB must maintain its readiness with a highly educated and trained force structure. Keesler AFB is the home of one of the largest technical training wings in the Air Force, the 81st Training Wing (81 TRW), which is the host unit at the installation. The mission of the 81 TRW is to provide technical training for the USAF, Air Force Reserve Command, and the Air National Guard (USAF, 2006a; Keesler AFB, 2008a).

1.1.2 History

Keesler AFB is named for Second Lieutenant Samuel Reeves Keesler, Jr., who died after being shot down behind German lines while serving in the U.S. Army Air Service in World War I. Keesler AFB originated as Army Air Corps Station No. 8, Aviation Mechanics School, Biloxi, Mississippi, on June 12, 1941. On August 25, 1941, Army Air Corps Station No. 8 was officially designated Keesler Army Airfield. Technical training at Keesler began with the Airplane and Engine Mechanics School in 1941. Basic training was conducted at Keesler Army Airfield from its inception through June 1946. The Army Air Force Radar School was moved to Keesler in 1947. On January 13, 1948, Keesler Army Airfield was officially designated Keesler AFB (Keesler AFB, 2008b).

In January 1949, the Air Force expanded the training focus at Keesler AFB to include radar, radio, and electronics maintenance and repair. Keesler AFB has continued as a leading technical training center for the Air Force. Today, the 81 TRW trains thousands of airmen and hundreds of Air Force officers, as well as military personnel from the United States Department of the Navy (Navy), Army, Marines, Coast Guard, and allied nations. The 81 TRW trains civilian and military personnel in a range of specialized skills, including avionics maintenance, radio and radar systems maintenance, communications electronics, computer systems, air traffic control, weather, and command and control systems (Keesler AFB, 2008b).

Figure 1-1
Keesler Air Force Base and General Vicinity
Keesler AFB Privatization Draft EA

1.1.3 Military Family Housing

Hurricane Katrina destroyed or severely damaged all military family housing (MFH) on Keesler AFB. To address the immediate need for MFH, Keesler AFB completed an Environmental Assessment (EA) for Revitalization of Military Family Housing (USAF, 2006b) after Hurricane Katrina. At present, Keesler AFB is demolishing old MFH units on Parcels A through D (Figure 1-2) and constructing new housing units in these areas. When complete, Keesler AFB will have 1,028 new housing units on Parcels A through D.

In addition to the onbase housing at Keesler AFB, the U.S. Navy transferred military housing services at Gautier, MS, to Keesler AFB following closure of Naval Station-Pascagoula under the Base Closure and Realignment Act of 2005 (Appendix A). The Sandhill Landing housing was built by the U.S. Navy in 2004 and comprises 150 townhouse units and 10 single-level handicapped-accessible housing units. It is located approximately 16 miles northeast of Keesler AFB in Jackson County (Figure 1-3).

1.2 Proposed Action

The Proposed Action consists of:

- Privatization of the housing units and the current family camp area (FamCamp) on Parcel A (Thrower Park, Figure 1-2). Once privatized the structures in FamCamp could be demolished and removed.
- Privatization of the housing units on Parcel B (West Falcon, Figure 1-2).
- Privatization of the housing units on Parcel C (East Falcon, Figure 1-2).
- Privatization of the housing units on Parcel D (Bay Ridge, Figure 1-2).
- Privatization of the Sandhill Landing housing in Gautier, MS (Figure 1-3).

A family camping area would be reestablished on Keesler AFB but that is not included in this action. It would be addressed under a separate National Environmental Policy Act (NEPA) analysis. For discussion purposes in this EA the current family camping area that will be privatized will be referred to as FamCamp. It should be noted that if the FamCamp area is included in privatization, Keesler AFB will establish a new FamCamp on another part of the installation. Therefore, the functions of FamCamp would not be included in privatization, only the land and existing structures.

Privatization is the transfer of government control of an asset and associated activities to a Project Owner (PO) in the private sector. In addition to previous regulations authorizing privatization of MFH, 10 U.S. Code (USC) §§ 2871 et seq. provides for privatization of MFH through the acquisition or construction of MFH units on or near military installations within the United States by qualified entities. The MFH areas at Keesler AFB and the Sandhill Landing housing have been evaluated and determined to be suitable for privatization. Under privatization, the government would transfer the MFH units and ownership of the utilities that exclusively serve existing MFH areas to the PO. The Air Force would retain ownership of the land on Parcels A, B, C, and D and Sandhill Landing housing and would transfer ownership of the housing units and other surface structures and utility

Figure 1-2
Location of Military Family Housing on Keesler AFB
Keesler AFB Privatization Draft EA

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Figure 1-3
Location of Sandhill Landing Housing
Gautier, MS
Keesler AFB Privatization Draft EA

infrastructure identified above to the PO through a 50-year lease arrangement. The PO would take ownership of buildings and utility infrastructure and would assume management of the land for the 50-year lease period.

Because the USAF would complete demolition of all old housing and construction of new housing on Parcels A through D prior to privatization and because the housing units at Sandhill Landing are already completed, any construction and demolition by the PO would be limited to that necessary to create new amenity services in the current FamCamp area after transfer of this land to the PO. The PO would be responsible for ownership and maintenance of structures within the leased areas and maintenance of the common grounds.

If during the lease term the occupancy of the new privatized housing on Parcels A through D were to fall below 95 percent for certain specified periods, the PO would be able to offer vacant housing units to other eligible tenants in accordance with the Rental Rate Management Plan and the Unit Occupancy Plan. However, the PO would have to allow for immediate rental to target tenants, which include authorized members of the uniformed services and their families (USAF, 2006c). If occupancy were to remain below 95 percent for 30 consecutive days, the PO could rent the units to Federal Civil Service employees, Retired Military, and Retired Civil Service employees. After 60 consecutive days below 95 percent occupancy, the PO could rent to Department of Defense (DoD) contractors. If occupancy were to remain below 95 percent for 90 consecutive days, the PO could rent the vacant units to the general public (USAF, 2006c). Because of the distance from the installation and no immediate forecast need for the units at Sandhill Landing for military families, housing units in Sandhill Landing would be immediately available for rent to non-military tenants to allow the PO to maintain occupancy. The PO would not have to follow the Rental Rate Management Plan and the Unit Occupancy Plan for units at Sandhill Landing.

1.3 Purpose and Need for Proposed Action

The purpose of the Proposed Action is to provide long-term ownership and management, including provision of amenities and general maintenance, of housing units for Keesler AFB. The 1996 Defense Authorization Act permits the military to use private capital to meet housing requirements where it is economically feasible. The Air Force has determined that privatization would result in lower life-cycle costs than would occur under continued Air Force ownership. The Proposed Action would provide an economically favorable long-term ownership and management of these resources. The Proposed Action is needed reduce to the USAF expenditures and to provide adequate housing for military personnel.

1.4 Applicable Regulatory Requirements, Permits, and Coordination

The following regulations, executive orders (EOs), permits, or coordination may be applicable to the Proposed Action as described in this EA:

- The NEPA of 1969 and implementing regulations in Title 40 Code of Federal Regulations (CFR), Parts 1500-1508 (40 CFR 1500-1508)

- The National Historic Preservation Act (NHPA) of 1966 (16 USC 470 et seq., as amended) and enabling legislation in Title 36 CFR, Part 800 (36 CFR 800)
- The Coastal Zone Management Act of 1972 (16 USC 1451-1466)
- The Americans with Disabilities Act of 1990, as amended (42 USC 12101-12213)
- 32 CFR 989, Environmental Impact Analysis Process
- Air Force Instruction (AFI) 91-302, Air Force Occupational and Environmental Safety, Fire Protection, and Health (Air Force Office of Safety and Health) Standards
- AFI 32-1052, Facility Asbestos Management
- AFI 32-7042, Solid and Hazardous Waste Compliance
- AFI 32-7064, Integrated Natural Resource Management
- The Endangered Species Act (ESA) of 1973 (16 USC 1531-1543)
- The Fish and Wildlife Coordination Act (16 USC 661, et seq.)
- EO 13186, Responsibilities of Federal Agencies to Protect Migratory Birds
- The Migratory Bird Treaty Act (MBTA) (16 USC 703, et seq.)
- The Clean Water Act (CWA) of 1977 and the Water Quality Act (WQA) of 1987 (33 USC 1251 et seq., as amended)
- EO 11990, Protection of Wetlands
- The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 (as amended by the Superfund Amendments and Reauthorization Act [SARA] of 1986)
- The Resource Conservation and Recovery Act (RCRA) of 1976
- The Archeological Resources Protection Act of 1979
- EO 11988, Floodplain Management
- EO 13175, Consultation and Coordination with Indian Tribal Governments
- The Clean Air Act (CAA) (42 USC 7401 et seq., as amended)
- The Noise Control Act of 1972
- EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations
- EO 13045, Protection of Children from Environmental Health Risks and Safety Risk

Keesler AFB distributed copies of the Description of Proposed Action and Alternatives to federal and state agencies and other interested parties (Appendix B). Responses have been received from two agencies, Mississippi Department of Marine Resources and Mississippi Department of Archives and History (Appendix B). Keesler AFB consulted with tribes

and Native American organizations regarding the construction of MFH on Keesler. The proposed action, transferring management of the already constructed housing to a private entity, would have no potential to impact Native American resources or interests. Therefore, no additional tribal coordination or consultation was required for the proposed action.

1.5 Authority and Scope of the Environmental Assessment

This document was prepared in accordance with the requirements of the NEPA of 1969, the Council on Environmental Quality (CEQ) regulations of 1978, and 32 CFR Part 989. This EA incorporates the Final Environmental Assessment for Revitalization of Military Family Housing (USAF, 2006b) by reference. Analyses of potential impacts to resources presented in the 2006 analysis are re-evaluated, as appropriate, to address privatization.

1.6 Resource Areas Eliminated from Detailed Analysis

The resource areas discussed below have been eliminated from detailed analysis in this document because there is no potential for the Proposed Action to impact these resources.

1.6.1 Air Installation Compatible Use Zone

The housing areas to be privatized are existing housing areas that do not conflict with the established Air Installation Compatible Use Zones (AICUZ) at Keesler AFB. There would be no change from previous conditions relating to AICUZ and no impacts to airfield operations or ownership. Therefore, AICUZ was eliminated as an issue warranting further analysis.

1.6.2 Land Use

There would be no change in land use as a result of privatization of housing at Keesler AFB. All areas that would be transferred are currently used for housing or recreation and these areas would continue to be used for these purposes. Therefore, land use was eliminated as an issue warranting further analysis.

1.6.3 Geology

Privatization of housing units in Parcels A through D, housing units in Sandhill Landing , and the existing structures in the FamCamp area would not result in disturbance or alteration of the underlying geologic features of Keesler AFB, Sandhill Landing, or the surrounding areas. Therefore, geology was eliminated as an issue warranting further analysis.

1.7 Issues Studied in Detail

The resource areas below are discussed in detail in this document:

- Noise
- Geomorphology and Soils
- Hydrology
- Water Quality

- Biological Resources
- Safety and Occupational Health
- Air Quality
- Hazardous Materials
- Cultural Resources
- Socioeconomics
- Environmental Justice and Protection of Children
- Traffic Flow
- Utility Infrastructure

1.8 Document Organization

This EA follows the organization established by the CEQ regulations (40 CFR, Parts 1500-1508). This document consists of eight sections plus three appendices:

1.0 Purpose and Need for Action
2.0 Description of the Proposed Action and Alternatives
3.0 Affected Environment
4.0 Environmental Consequences
5.0 Plan, Permit, and Management Requirements
6.0 List of Preparers
7.0 List of Contacts
8.0 References

1.9 Public Involvement Summary

The Keesler AFB 81st Environmental Flight (81 CES/CEV) published a Notice of Availability in the *Biloxi Sun Herald* on June 24, 2009, announcing the 30-day review period for the Draft EA which closed on July 24, 2009. The review period afforded the public and appropriate federal, state, and local agencies the opportunity to review and comment on the EA. No comments were received during the public comment period.

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2.0 Description of Proposed Action and Alternatives

As required by federal regulations, this EA addresses the possible environmental impacts of a No-Action Alternative and any reasonable action alternatives. This section provides a description of the action alternative (privatization alternative) and the No-Action Alternative. While no additional action alternatives are considered, the range of reasonable alternatives and the reason for not carrying any additional action alternatives forward for detailed analysis in the EA are discussed.

2.1 Privatization Alternative

The privatization alternative consists of:

- Privatization of the housing units and the structures in the current FamCamp on Parcel A (Thrower Park, Figure 1-2). Once privatized the structures in FamCamp could be demolished and removed.
- Privatization of the housing units on Parcel B (West Falcon, Figure 1-2).
- Privatization of the housing units on Parcel C (East Falcon, Figure 1-2).
- Privatization of the housing units on Parcel D (Bay Ridge, Figure 1-2).
- Privatization of the Sandhill Landing housing area in Gautier, MS (Figure 1-3).

A family camping area would be reestablished on Keesler AFB but that is not included in this action. It would be addressed under a separate NEPA analysis. For discussion purposes in this EA the current family camping area that will be privatized will be referred to as FamCamp.

Under privatization, the USAF would retain ownership of the land but would transfer ownership of the housing units, utility infrastructure, and structures on the FamCamp area identified above to the PO through a 50-year lease arrangement. The FamCamp area may be included in this privatization. Should the FamCamp area be privatized, all structures in the FamCamp area would be transferred to the PO and the land included in the 50-year lease. The recreational structures in the FamCamp area are, therefore, considered in this analysis to ensure that all potential issues are discussed. It should be noted that if the FamCamp area is included in privatization, Keesler AFB will establish a new FamCamp on another part of the installation. Therefore, the functions of FamCamp would not be included in privatization, only the land and existing structures.

The structures in the FamCamp are limited to paved recreational vehicle parking pads, utility hook-ups, and common restroom facilities. Following privatization, the PO could choose to convert the FamCamp area into a recreational amenity area to serve housing residents. This conversion could entail demolition of existing facilities and construction of

new recreational facilities. Because the housing units in Parcels A through D would be newly constructed and Sandhill Landing was constructed in 2004, the PO would not be responsible for any demolition or construction of housing units as a direct result of the privatization. Demolition and reconstruction may be necessary in the future as a result of episodic damage, such as fire or hurricane damage, or as a result of deterioration from long-term use. Since this contingency is speculative, the impacts of further demolition or construction are not analyzed herein.

2.2 No-Action Alternative

Under the No-Action Alternative, Keesler AFB would retain control and ownership of housing units and utility infrastructure and no assets would be privatized. Life-cycle costs for ownership of housing would remain with the Air Force.

2.3 Alternatives Eliminated from Consideration

Housing at Keesler AFB and Sandhill Landing consists of all newly or recently constructed units. Because no foreseeable substantial construction or demolition would be associated with the proposed transfer of housing to the PO, the range of possible alternatives is limited to the two considered in this EA (Proposed Action and No-Action) and intermediate levels of transfer whereby Keesler AFB would retain a portion of the housing and transfer a portion of the housing to the PO.

Partial privatization of housing by Keesler AFB would have impacts comparable to those of privatization because the same amount of housing would be managed, but would not provide the same economic benefit to the Air Force. The major benefit of privatization is that the Air Force would save money by transferring management and ownership of housing units and management of utilities to an entity that is more effective at managing housing. Under partial privatization, Keesler AFB would have to continue to commit staff to management of housing, which would effectively eliminate any benefit that would accrue from privatization. Additionally, partial privatization would limit the economic incentive of the PO to participate, as there would be less income from fewer units under control of the PO.

Because partial privatization would have comparable impacts and would provide less economic incentive, it is not considered a feasible option. Accordingly, a partial privatization alternative is not carried forward for detailed analysis in this EA.

2.4 Comparison of Alternatives

There would be no significant impacts to the human or natural environment from implementation of the Privatization Alternative or the No-Action Alternative. Table 2-1 provides a summary of the impacts analyzed in this EA. Under the No-Action Alternative, there would be no change from existing conditions and there would be no impacts to any resources. Under the Privatization Alternative, there could be minor short-term negative impacts to air quality, soils, water quality, and noise should the PO decide to construct new amenities in the area previously used for FamCamp. Should the PO construct amenities, there would be a short-term benefit to the local economy.

TABLE 2-1
Summary of Potential Environmental and Socioeconomic Consequences
Military Family Housing Privatization at Keesler AFB, MS

	Environmental and Socioeconomic Consequences	
Resource	**No-Action Alternative**	**Privatization Alternative**
Land Use	No Change from Baseline Conditions	No impact
Aesthetics and Visual Resources	No Change from Baseline Conditions	No impact
Air Quality	No Change from Baseline Conditions	Potential for minor short-term impact from construction- and demolition-related fugitive dust should amenities be constructed in the FamCamp area. Appropriate best management practices (BMPs) would be implemented to minimize potential for fugitive dust generation.
Noise	No Change from Baseline Conditions	Potential for negligible impact from construction and demolition should amenities be constructed in the FamCamp area. Appropriate worker safety measures would be implemented.
Safety and Occupational Health	No Change from Baseline Conditions	Potential for negligible impact from construction and demolitions should amenities be constructed in the FamCamp area. Appropriate worker safety measures would be implemented.
Geology and Soils		
Geology/Topography	No Change from Baseline Conditions	No impact
Soils	No Change from Baseline Conditions	Minor impact limited to the privatized FamCamp should amenities be constructed in the FamCamp area: appropriate BMPs would be implemented to minimize erosion and impact from stormwater runoff.
Prime Farmland	No Change from Baseline Conditions	No impact
Water Resources		
Surface Water	No Change from Baseline Conditions	Negligible impact limited to the privatized FamCamp should amenities be constructed in the FamCamp area: appropriate BMPs would be implemented to minimize indirect impacts from erosion and stormwater runoff.
Hydrogeology/Groundwater	No Change from Baseline Conditions	No impact
Floodplains	No Change from Baseline Conditions	No impact

TABLE 2-1
Summary of Potential Environmental and Socioeconomic Consequences
Military Family Housing Privatization at Keesler AFB, MS

	Environmental and Socioeconomic Consequences	
Resource	**No-Action Alternative**	**Privatization Alternative**
Stormwater	No Change from Baseline Conditions	Minor impact limited to the privatized FamCamp should amenities be constructed in the FamCamp area: use of appropriate BMPs and stormwater controls would prevent impacts from construction activities. Stormwater controls would be designed to prevent post-construction runoff from exceeding pre-construction runoff.
Biological Resources		
Vegetation	No Change from Baseline Conditions	Minor impact limited to the privatized FamCamp should amenities be constructed in the FamCamp area.
Wildlife	No Change from Baseline Conditions	Minor impact limited to the privatized FamCamp should amenities be constructed in the FamCamp area.
Sensitive Species	No Change from Baseline Conditions	No impact
Wetlands	No Change from Baseline Conditions	No impact
Floodplains	No Change from Baseline Conditions	No impact
Cultural Resources		
Historic Resources	No Change from Baseline Conditions	No impact
Archeological Resources	No Change from Baseline Conditions	No impact
Native American Resources	No Change from Baseline Conditions	No impact
Socioeconomics		
Economic Development	No Change from Baseline Conditions	Minor benefit to local economy during construction limited to the privatized FamCamp should amenities be constructed in the FamCamp area. Negligible impact from operation.
Demographics	No Change from Baseline Conditions	No impact
Housing	No Change from Baseline Conditions	No impact
Environmental Justice	No Change from Baseline Conditions	No impact
Protection of Children	No Change from Baseline Conditions	No impact

TABLE 2-1
Summary of Potential Environmental and Socioeconomic Consequences
Military Family Housing Privatization at Keesler AFB, MS

Resource	Environmental and Socioeconomic Consequences	
	No-Action Alternative	**Privatization Alternative**
Transportation	No Change from Baseline Conditions	Minor impact limited to the privatized FamCamp should amenities be constructed in the FamCamp area. No impact from operation.
Utilities		
Potable Water	No Change from Baseline Conditions	No impact
Wastewater	No Change from Baseline Conditions	No impact
Energy	No Change from Baseline Conditions	No impact
Solid Waste	No Change from Baseline Conditions	No impact
Hazardous Materials, Wastes, Installation Restoration Program Sites, and Stored Fuels		
Hazardous/Toxic Materials	No Change from Baseline Conditions	No impact
Indirect and Cumulative Impacts	No Change from Baseline Conditions	Minor impact

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3.0 Affected Environment

Because of the spatial separation of the Sandhill Landing from Keesler AFB, the discussion addresses Sandhill Landing separate from Parcels A through D, which are collectively referred to as Keesler AFB. Because of the recent acquisition of Sandhill Landing, existing information for Keesler AFB does not include this property.

3.1 Noise

Sounds generated by activities that could affect employees of Keesler AFB, on-base residents, or residents of off-base areas are considered noise for this analysis. Sound pressure is measured in units of decibels (dB). Human hearing is best approximated by using an A-weighted decibel scale (dBA), which gives greater emphasis to sounds within the range of human hearing. When sound pressure doubles, the dBA level increases by three (The Engineering Toolbox, 2005). However, psychologically, most humans perceive a doubling of sound as an increase of 10 dBA (U.S. Environmental Protection Agency [USEPA], 1974). Sound pressure decreases with distance from the source. Typically, the sound measured from a point source decreases at a rate of 6 dBA per doubling of distance, and sound from a continuous source decreases at a rate of 3 dBA per doubling of distance. However, other factors including ground type, atmospheric conditions, and shielding by vegetation and structures further affect the amount of decrease in sound over distance (Federal Highway Administration [FHWA], 2007).

Noise levels are often expressed as day-night averaged sound level (Ldn), which is the dBA sound level over a 24-hour day and night period. The Ldn also applies a 10-dBA penalty to nighttime sounds occurring between 10 pm and 7 am to account for the desirability of a quieter night than day. A noise level considered low is less than 45 dBA, a moderate noise level is 45-60 dBA, and a high noise level is above 60 dBA. In busy urban areas, noise levels are typically near 75 dBA, and can reach 85 dBA near airports and major freeways (California State Lands Commission, 2005). Sound levels in rural residential areas typically average 40 dBA. In business and commercial areas, sound levels typically range from 50 dBA to 60 dBA (The Engineering Toolbox, 2005).

3.1.1.1 Keesler AFB

Aircraft operations dominate the background noise at Keesler AFB. Noise associated with residential activity also contributes to the existing noise environment and the environmental noise levels are directly related to traffic volumes, speed of traffic, population density, and recreational activities. The average Ldn calculated for all MFH at Keesler AFB during 2000 was 63.1 dBA (USAF, 2006b).

3.1.1.2 Sandhill Landing

Noise associated with residential activity contributes to the existing noise environment and the environmental noise levels are directly related to traffic volumes, speed of traffic, population density, and recreational activities.

3.2 Geomorphology and Soils

Geomorphology refers to landforms and slopes (topography/relief).

3.2.1.1 Keesler AFB

The topography at Keesler AFB is generally flat or gently undulating (USAF, 2006b). Keesler AFB lies within the East Gulf Coastal Plain physiographic region of Mississippi. Elevations range from about 5 to 30 feet above mean sea level (USAF, 2006b).

Soils in the Keesler AFB area are predominantly derivative of sandy marine deposits and sandy alluvium. They vary in composition and permeability characteristics. Soils in the housing areas are primarily Eustis loamy sand (0-5 percent slopes) and Lakeland fine sand. In addition, the housing areas contain smaller amounts of Eustis and Poarch Soils (8-17 percent slopes), Handsboro association, Harleston fine sandy loam (0-2 percent slopes), Harleston fine sandy loam (2-5 percent slopes), Latonia loamy sand, and Plummer fine sand. Such sandy soils have a good to fair drainage capacity (Natural Resources Conservation Service [NRCS], 2008).

3.2.1.2 Sandhill Landing

The topography of Sandhill Landing is generally flat or gently undulating. Sandhill Landing housing area lies within the East Gulf Coastal Plain physiographic region of Mississippi.

Soils in Sandhill Landing are poorly to moderately drained and include Benndale Fine Sandy Loam (2-5 percent slopes), Latonia Loamy Sand (0-2 percent slopes), Hyde Silt Loam, Stough Loam (0-2 percent slopes), and Croatan and Johnston Soils. Hyde Silt Loam and Croatan and Johnston Soils are considered hydric soils (U. S. Department of the Navy [USN], 2002). Hydric soil is a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (NRCS, 2009).

3.3 Hydrology

Hydrologic features include surface waters (lakes, rivers, streams, and springs), wetlands, floodplains, and groundwater. The following sections provide descriptions of these resources in the vicinity of Keesler AFB and Sandhill Landing.

3.3.1 Groundwater

Water-bearing sands capable of supporting large withdrawal rates are located in the vicinity of Keesler AFB at depths of approximately 400, 600, 800, and 1,200 feet below ground surface (USAF, 2006b). Regional groundwater resources include the Coastal Deposits Surficial Aquifer, the Citronelle Aquifer, and the Miocene Aquifer. The Miocene Aquifer is the main freshwater source for Keesler AFB and Sandhill Landing housing area (USAF, 2006a; USN, 2002).

3.3.2 Surface Waters

3.3.2.1 Keesler AFB

Keesler AFB is located on a peninsula between the Back Bay of Biloxi and the Mississippi Sound, north of the Gulf of Mexico. No permanent flowing streams occur on Keesler AFB, but overland flow discharges to the Back Bay. A small stormwater swale extends along a portion of the northern boundary of the Parcel A housing area. Stormwater drainage within this area would flow into the swale and from there to the Back Bay (USAF, 2006a).

3.3.2.2 Sandhill Landing

Sandhill Landing is located on a 75-acre parcel in Gautier, MS and is approximately 7 miles north of the Gulf of Mexico. An 11-acre pond is located in the northeast corner of the parcel and is a former borrow pit. No permanent flowing streams occur on the parcel (USN, 2002).

3.3.3 Floodplains

A floodplain is any land area susceptible to being inundated by floodwaters from any source. A Special Flood Hazard Area (SFHA) is the land area covered by the floodwaters of the 100-year flood, where the National Flood Insurance Program floodplain management regulations must be enforced and the area where the mandatory purchase of flood insurance applies (44 CFR 59.1).

3.3.3.1 Keesler AFB

Floodplains have been defined at several locations on Keesler AFB along the Back Bay and the tidal creeks. In addition, small, undeveloped sections of the northeast edge and southeast corner of Parcel A lie within the SFHA, although no housing units are affected. A small portion of the northeast corner of Parcel D lies within the SFHA, although no housing units are affected (USAF, 2006a).

3.3.3.2 Sandhill Landing

No areas at Sandhill Landing are within a designated SFHA.

3.3.4 Wetlands

Wetlands are areas that are inundated or saturated by surface- or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (33 CFR 328.3).

3.3.4.1 Keesler AFB

Wetlands within the MFH areas on Keesler AFB are limited to coastal tidal marshes that extend along much of the Back Bay of Biloxi. Wetlands border the entire northern boundary of the Parcel D housing area and extend south into the housing area at its northwest corner. These wetlands form the edge of the yards in MFH lots that border the Back Bay but do not extend to areas where houses are constructed.

3.3.4.2 Sandhill Landing

The wetland delineation conducted for Sandhill Landing includes 8 acres that were sold to developers. The 12.67 acres determined as jurisdictional wetlands are mainly on the north and south ends of the parcel. The wetlands do not extend to areas where houses were constructed (USN, 2002).

3.4 Water Quality

3.4.1.1 Keesler AFB

Water quality within the Back Bay of Biloxi is influenced by several factors, including the discharge of freshwater from rivers, seasonal climate changes, and variations in tide and currents. The primary driver of water quality is the rivers that feed into the bay. Freshwater inputs provide nutrients and sediments that serve to maintain productivity in the bay and in the extensive salt marsh habitats bordering the estuaries of the bay. Coastal marshes form the northern border of the base on the Back Bay of Biloxi. In addition, a small stormwater swale extends along a portion of the northern boundary of the Parcel A housing area. Stormwater flows, which usually increase in volume and velocity with increases in impervious surfaces such as rooftops and paved areas, have the potential to impact water quality. Stormwater drainage within the Parcel A housing area would flow into this swale and from there to the Back Bay (USAF, 2006a).

3.4.1.2 Sandhill Landing

Sandhill Landing was developed with an internal stormwater system of culverts and ditches, in accordance with local, state, and federal guidelines to convey stormwater runoff (USN, 2002).

3.5 Biological Resources

Biological resources include the native and introduced terrestrial plants and animals around Keesler AFB. Most of Keesler AFB is developed and is occupied by roads, buildings, and runways. With the exception of the coastal marshes that form the northern border of the base along the Back Bay of Biloxi, the land areas at Keesler AFB do not support an abundant variety of natural habitats. A comprehensive review of the important species and ecological associations was presented in the environmental assessment for rebuilding Keesler MFH after Hurricane Katrina (USAF, 2006b); therefore, only summary information is provided below.

Sandhill Landing was developed in 2003 and is occupied by roads and buildings. The U.S. Fish and Wildlife Service (USFWS) identified the parcel as critical habitat for the Mississippi sandhill crane (USN, 2002).

3.5.1 Wildlife Species

Wildlife species at Keesler AFB and Sandhill Landing are those common to the central southeastern United States. The USAF has identified 10 species of mammals, 1 reptile species, and 25 species of birds with potential to occur on Keesler AFB (USAF, 2006b).

3.5.2 Plant Species

3.5.2.1 Keesler AFB

The existing vegetation at Keesler AFB is largely urban and suburban and vegetated portions of the base are composed primarily of landscaped plants and grasses. Keesler AFB has more than 8,000 native trees (USAF, 2006b). A small amount of naturally vegetated area occurs in the wetlands that border the Back Bay of Biloxi.

3.5.2.2 Sandhill Landing

The existing vegetation at Sandhill Landing is suburban and the vegetated portion of the housing area is composed primarily of landscaped plants and grasses.

3.5.3 Sensitive Species

Sensitive species include those with federal endangered or threatened status; species proposed for listing as federal endangered or threatened; and state endangered, threatened, and species of special concern status. An endangered species is one that is in danger of extinction throughout all or a significant portion of its range. A threatened species is any species that is likely to become endangered in the future throughout all or a significant portion of its range due to loss of habitat, human activities, or other causes. There are 16 federal and state listed threatened or endangered wildlife species potentially occurring on Keesler AFB or the Sandhill Landing. Only one of these, the Mississippi sandhill crane, is known to occur in the Sandhill Landing area.

3.5.3.1 Keesler AFB

No federal or state listed species occur on Keesler AFB (USAF, 2006b) No areas on Keesler AFB are designated as critical habitat under the ESA.

The bald eagle is a large raptor found over most of North America. This species was delisted under the ESA in 2007 (50 CFR 17). The bald eagle will be monitored for 5 years to determine whether ESA protection should be re-enacted. However, the bald eagle remains protected under the Bald and Golden Eagle Protection Act and the MBTA, directed by the USFWS. In the Southeast, bald eagles build their nests in early September. They usually build nests in high pine trees or bald cypress trees that are 1,000 feet or less from open water. The species has not been documented nesting on Keesler AFB. However, the bald eagle does occur in the general area and there is a possibility that incidental flyovers and incidental foraging may occur along the Back Bay at Parcel A.

3.5.3.2 Sandhill Landing

The above information regarding the bald eagle also applies to Sandhill Landing. The species has not been documented nesting on Sandhill Landing. However, there is the possibility for incidental flyovers.

The Mississippi sandhill crane is a non-migratory population of the sandhill crane that uses wet pine savannah habitat along the Gulf Coast. A portion of Sandhill Landing was used for roosting, nesting, and foraging by the Mississippi sandhill crane prior to construction of the housing units. There is no longer suitable habitat for Mississippi sandhill cranes at Sandhill Landing. However, Sandhill Landing abuts the Mississippi Sandhill Crane National Wildlife

Refuge (Refuge). At the time the Navy proposed to construct Sandhill Landing, the USFWS issued a Biological Opinion (BO) to address potential impacts to the Mississippi sandhill crane and its habitat (Appendix C). USFWS determined that the loss of 75 acres of designated critical habitat would constitute a take under the ESA. To offset this impact to critical habitat, the Refuge received 77 acres of off-site crane critical habitat from the Navy. In addition, to minimize the potential for future impacts from operation of Sandhill Landing, the USFWS set forth three reasonable and prudent measures (RPMs) and five Terms and Conditions (T&Cs) in the BO for the Navy to implement at Sandhill Landing housing area. These RPMs remain in effect with the transfer of the Sandhill Landing to Keesler AFB, and USAF is now responsible for implementing the RPMs and T&Cs specified in the BO (Appendix C).

3.5.4 Migratory Bird Treaty Act

DoD installations are required to comply with the MBTA. The 2003 Defense Authorization Act required the USFWS to reduce restrictions on military readiness training caused by migratory birds. DoD has agreed to work to conserve bird species of conservation concern (BCC) on installations. The Keesler AFB BCC species list was developed by the North American Bird Conservation Initiative, to include species that occur in the Southeast Coastal Plain Region, which includes 45 migratory species (USFWS, 2002). Keesler AFB and Sandhill Landing are not in a major or minor flyway, though migratory birds may pass over during the spring or fall (Bird Nature, 2008).

3.6 Safety and Occupational Health

The MFH, FamCamp, and Sandhill Landing are operated in compliance with all applicable federal laws, codes, and regulations and with all applicable laws, ordinances, codes, and regulations of the state of Mississippi and Jackson and Harrison Counties with regard to construction, health, safety, food service, water supply, sanitation, licenses and permits to do business, and all other matters.

3.7 Air Quality

Keesler AFB and Sandhill Landing are located in USEPA Region IV, which covers Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee, and six tribes. Although activities at Keesler AFB result in various sources and volumes of air emissions, the regional air quality is good.

The USEPA maintains a listing of all locations in the United States that are classified as nonattainment areas based on air quality for all criteria pollutants. Currently, the State of Mississippi is in attainment for all criteria pollutants (USEPA, 2008).

3.7.1.1 Keesler AFB

Air pollutants are emitted from mobile and stationary sources, general maintenance activities, government- and privately-owned vehicles, boilers, emergency generators, aircraft operations, surface coating operations, fuel storage/transfer facilities, and training operations (USAF, 2006b). Keesler AFB is classified as a major source and operates under a Title V Permit. The

Environmental Permits Division within the Mississippi Department of Environmental Quality (MDEQ) implements and oversees the operating permit program.

Since Keesler AFB is within an attainment area for all criteria pollutants, major new or modified stationary sources on and near the base are subject to Prevention of Significant Deterioration (PSD) review to ensure that these sources are constructed without causing significant deterioration of regional air quality. A major new source is defined as one that has the potential to emit any pollutant regulated under the CAA in amounts equal to or exceeding specific major source thresholds: 100 or 250 tons/year based on the source's industrial category.

3.7.1.2 Sandhill Landing

Gautier and the Sandhill Landing area is in attainment for all criteria pollutants and is not a major source of pollutants.

3.8 Hazardous Materials

3.8.1.1 Keesler AFB

Keesler AFB has an active Environmental Restoration Program (ERP) designed to protect human health and the environment and to restore areas for future use. Keesler AFB executes the ERP in consultation with the MDEQ in accordance with CERCLA and RCRA. Four ERP sites have been identified in the MFH areas, all of which have been closed after determinations of no further action required. Keesler AFB is regulated as a large quantity generator of hazardous waste (HW). Waste minimization and recycling are emphasized, with HW disposal as the final resort (USAF, 2006b). These wastes are typically generated from painting and paint removal activities, cleaning operations, chemical laboratory analytical work, environmental leaks, ERP activities, and unused hazardous materials (HM).

No lead-based paint (LBP) remains in Keesler AFB MFH units. Keesler AFB constructed the new MFH without the use of LBP (USAF, 2006a).

No asbestos-containing materials (ACMs) remain in Keesler AFB MFH units. Keesler AFB constructed the new MFH without the use of ACM (USAF, 2006a).

No fuel has ever been supplied for recreational vehicles in the FamCamp, so no underground storage tanks (USTs) or aboveground storage tanks (ASTs) are located in this area. In addition, there is no history of any USTs or ASTs being located in the MFH areas. Minor quantities of cleaners are purchased and used by the housing residents. The use of these chemicals is not tracked by Keesler AFB and the quantity of these chemicals is unknown. No other HM or other petroleum products are stored at the site (USAF, 2006a).

3.8.1.2 Sandhill Landing

Sandhill Landing is not a generator of HW. The housing units, which are the only structures on the property, were constructed in 2003 without the use of LBP or ACM (USN, 2002).

3.9 Cultural Resources

Section 106 of the NHPA requires that federal agencies analyze the effects of federal activities on historic properties. Areas potentially affected by mission activities are surveyed as needed.

3.9.1.1 Keesler AFB

Surveys conducted on Keesler AFB identified no prehistoric or historic Native American sites (USAF, 2006b). Keesler AFB contacts local Native American tribes concerning any archaeological resources found on its property (USAF, 2006a).

Keesler AFB has completed archeological surveys of the base, which resulted in the determination that Hangar 228 is the only building on-base that is potentially eligible for the National Register of Historic Places (NRHP). No historic buildings or structures have been identified in the MFH or FamCamp (USAF, 2006b). All housing in the MFH at Keesler AFB is new construction since Hurricane Katrina in August 2005. .

3.9.1.2 Sandhill Landing

The housing at Sandhill Landing was built in 2003 (USN, 2002). The Navy completed archeological surveys of Sandhill Landing housing area, which determined that no historic building or structures existed there. Surveys also identified no prehistoric or historic Native American sites (USN, 2002).

3.10 Socioeconomics

Socioeconomic resources within the context of this EA are resources pertaining to the local economy and population in the Keesler AFB and Sandhill Landing housing area. Changes in these two socioeconomic indicators may be accompanied by changes in other areas such as housing availability and the provision of public services.

3.10.1.1 Keesler AFB

In August 2005, Hurricane Katrina caused extensive damage to the Keesler AFB area, destroying most of the buildings along the coastline and prompting an evacuation from the region.

3.10.1.2 Sandhill Landing

Sandhill Landing is approximately 6.5 miles from the Gulf of Mexico, and the housing was not destroyed.

3.10.2 Population

Prior to Hurricane Katrina, the Biloxi area experienced steady population growth since 1990, exceeding the State of Mississippi's rate of growth. Because large portions of some coastal cities were destroyed, other cities that were not impacted or only lightly impacted by the force of Hurricane Katrina, such as Baton Rouge, have become home to individuals seeking to start over following the destruction of their homes and businesses. People who were temporarily displaced by the hurricane have returned to Pascagoula and other Gulf coast

communities to begin the rebuilding process. Local populations have changed significantly in the region, reflecting both increases and decreases, as a result of these population shifts. The population estimates for the counties surrounding Keesler AFB are listed in Table 3-1, along with the national and state population estimates.

TABLE 3-1
U.S. Census 2007 Population Estimates

Location	Total Population
Hancock County	39,687
Harrison County	176,105
Jackson County	130,098
State of Mississippi	2,918,785
United States	301,621,157

Source: U.S. Census Bureau, 2007.

3.10.3 Housing

3.10.3.1 Keesler AFB

Housing along the Gulf Coast was heavily affected by Hurricane Katrina. Prior to Hurricane Katrina, the MFH inventory at Keesler AFB included 1,820 units (USAF, 2006a). Keesler AFB is rebuilding 1,028 units to house non-commissioned and commissioned officers. Rebuilding began in April 2007. The 198 units for airman and their families in Parcel A have been completed. The remaining 830 housing units for airman are in the process of being built in Parcels B-D. The expected completion date for all 1,028 units is January 2010 (Keesler AFB, 2008c).

The housing units typically provide housing for military families based at Keesler AFB. However, if during the lease term the occupancy of the new privatized housing were to fall below 95 percent for certain specified periods, the PO would be able to offer vacant housing units to other eligible tenants in accordance with the Rental Rate Management Plan and the Unit Occupancy Plan. However, the PO would have to allow for immediate rental to target tenants, who include authorized members of the uniformed services and their families (USAF, 2006c). If occupancy were to remain below 95 percent for 30 consecutive days, the PO would be able to rent the units to Federal Civil Service employees, Retired Military, and Retired Civil Service employees. After 60 consecutive days below 95 percent occupancy, the PO would be able to rent to DoD contractors. If occupancy were to remain below 95 percent for 90 consecutive days, the PO would be able to rent the vacant units to the general public (USAF, 2006c).

3.10.3.2 Sandhill Landing

The Navy built 160 units at Sandhill Landing to house enlisted personnel and officers in 2003 (Keesler AFB, 2008d). Because of the distance from the installation and no immediate forecast need for the units at Sandhill Landing for military families, housing units in Sandhill Landing would be immediately available for rent to non-military tenants to allow

the PO to maintain occupancy. The PO would not have to follow the Rental Rate Management Plan and the Unit Occupancy Plan for units at Sandhill Landing.

3.10.4 Economy

The civilian labor force in Harrison, Hancock, and Jackson counties in 2000 was 166,626 persons, of whom 155,970 were employed (U.S. Census Bureau, 2000). The three-county unemployment rate in 2000 was 6.4 percent and decreased to 5.5 percent in 2007 (U.S. Bureau of Labor Statistics, 2007). In 2006, the three counties had an average unemployment rate of 9.4 percent (U.S. Bureau of Labor Statistics, 2006). Median household income was $36,647 and persons below the poverty level represented 15.6 percent of the population (U.S. Census Bureau, 2000).

Primary industries in the Biloxi region are government, tourism/recreation, and seafood. The casino gaming industry has experienced substantial growth over the past decade and is also a major employer. However, Hurricane Katrina caused major damage to the gaming sector and there is concern that there will be lasting detrimental effects. Additional major employers in the region include Keesler AFB, Northrop Grumman Ship Systems, Stennis Space Center, Naval Construction Battalion Center, and healthcare centers (USAF, 2006a).

3.11 Environmental Justice and Protection of Children

3.11.1 Environmental Justice

Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. “Fair treatment” means that no group, including racial, ethnic, or socioeconomic groups, should bear a disproportionate share of the adverse environmental consequences resulting from industrial, municipal, or commercial operations or the execution of federal, state, local, and tribal programs and policies.

In February 1994, President Clinton issued EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (59 Federal Register [FR] 7629). This EO directs federal agencies to incorporate environmental justice as part of their missions. Federal agencies are specifically directed to identify and, as appropriate, to address disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations. CEQ has issued guidance to federal agencies to assist them with their NEPA procedures so that environmental justice concerns are effectively identified and addressed (CEQ, 1997).

The 2004 American Community Survey (U.S. Census, 2004) was used to determine the low-income and minority population characteristics of the metropolitan statistical area (MSA) consisting of Biloxi – Gulfport – Pascagoula.

In 2004, the Biloxi-Gulfport-Pascagoula MSA had an estimated population, 363, 966, with 86,710 minority residents. Minority residents in the MSA made up 24 percent of the regional

population. Black persons were the predominant minority group in each jurisdiction (U.S. Census, 2004).

The incidence of poverty in the region is somewhat below the state average of 20.7 percent (U.S. Census, 2009). Individuals living below the poverty level account for 16.1 percent of the population in the Biloxi-Gulfport-Pascagoula MSA (U.S. Census, 2004). The demographic data indicates that minority and low-income groups do not represent a disproportionate number of the ROI population.

3.11.2 Protection of Children

Guidelines for the protection of children are specified in EO 13045, Protection of Children from Environmental Health Risks and Safety Risk (62 FR 19885). This EO requires that federal agencies make it a high priority to identify and assess environmental health and safety risks that may disproportionately affect children, and ensure that policies, programs, and standards address disproportionate risks to children that result from environmental health or safety risks.

The youth population, consisting of children under the age of 18 years, is consistent throughout the region, with no known areas of concern where youth might experience special environmental health or safety risks. Children constitute 26.1 percent of the population in the Biloxi-Pascagoula-Gulfport MSA (U.S. Census, 2004), which is comparable to the state youth population of 26.3 percent (U.S. Census, 2009).

The housing at Keesler AFB is newly constructed and all Sandhill Landing housing was constructed in 2003 without the use of LBP or ACM.

3.12 Traffic Flow

3.12.1 Roads and Parking

3.12.1.1 Keesler AFB

Keesler AFB is located within the Biloxi city limits. The main east-west road on the Biloxi Peninsula, U.S. Highway (Hwy) 90, parallels the southern border of the installation. U.S. Hwy 90 provides access to I-10 via U.S. Hwy 49 and I-110, an interstate spur constructed to facilitate traffic flow to the casinos along the coast.

The base road network consists of approximately 146 miles of roadways. The majority of the roads system is asphalt with curb and gutter systems. Larcher Boulevard is a primary road and connects the main gate to the medical center. Ploesti Drive accommodates traffic from off-base areas to the west (USAF, 2006a).

The housing areas have arterial roadways with minimal side street parking. Each housing area can be accessed from a number of roadways. All roads in the housing areas are asphalt with curb and gutter systems.

3.12.1.2 Sandhill Landing

Sandhill Landing is within the Gautier city limits. U.S. Hwy 57 parallels the western border of the property and Robinson Still Road parallels the southern border. U.S. Hwy 57 provides

access to I-10, which is less than a half-mile south of the property (USN, 2002). The Sandhill Landing road network consists of approximately 1 mile of roadway connecting the condominiums and houses. All roads in Sandhill Landing are asphalt with curb and gutter systems.

3.13 Utility Infrastructure

3.13.1.1 Keesler AFB

Solid waste at Keesler AFB is collected by a service contractor and disposed of at the Pecan Grove Municipal Landfill in Pass Christian, MS. Construction and demolition waste from the Base that requires disposal is transported to the Coastal Recycling Rubbish Site located in northern Harrison County (Keesler AFB, 2007). Keesler AFB and its MFH are served by Mississippi Power Company for electricity, Center Point Energy for natural gas, on-base wells (12 wells permitted for 7,732 gallons per minute; MDEQ, 2008) for water, and the Harrison County Wastewater District for sewer services (USAF, 2006b). Keesler AFB is responsible for maintenance of utility infrastructure on its properties.

Recycling is performed by Keesler AFB under the Qualified Recycling Program. Materials collected include mixed paper, steel and aluminum cans, glass, plastics, and cardboard. Recyclable materials are collected curbside weekly and transported to the Keesler AFB recycling center (Keesler AFB, 2007).

3.13.1.2 Sandhill Landing

Sandhill Landing receives electricity and natural gas from commercial suppliers. Water can be provided through an on-site well (permitted for 600 gallons per minute) or by Jackson County Port Authority via water lines accessible at the Sunplex Light Industrial Park located 2 miles to the south. Sandhill Landing is served by the Sunplex Utility System, operated by the Jackson County Port Authority, for wastewater, and is served by BFI for solid waste (USN, 2002). Keesler AFB assumed responsibility for maintenance of utility infrastructure on Sandhill Landing when it was obtained from the U.S. Navy.

4.0 Environmental Consequences

4.1 Noise

4.1.1 Privatization Alternative

There would be no changes to the privatized housing from existing conditions under the privatization alternative. No noise impacts noise would result.

No long-term noise impacts at the FamCamp would result under the privatization alternative. A minor short-term increase in noise from demolition- and construction-related activities would be expected, but these impacts would cease following the construction of new facilities. Disturbance from noise would be reduced by limiting construction activities to daytime hours, when persons would be away from home or awake.

4.1.2 No-Action Alternative

There would be no changes to the housing at Keesler AFB, Sandhill Landing, and to the FamCamp. As a result, no noise-related impacts from the No-Action Alternative would be anticipated.

4.2 Geomorphology and Soils

4.2.1 Privatization Alternative

There would be no changes to the privatized housing, so no impacts to geomorphology or soils would result in these areas.

Should the PO decide to develop the privatized FamCamp area into recreational amenities for residents, soil disturbance would result from demolition and construction activities. Grading to prepare the site for construction would not alter site topography because the FamCamp was cleared and graded in the past.

Soil disturbance could result in increased erosion potential from loss of ground cover and exposure of bare soils to precipitation and runoff. Potential temporary impacts to water quality from these factors are discussed in Section 4.4. Potential impacts would be controlled and avoided through the use of appropriate best management practices (BMPs) and soil stabilization/revegetation techniques following construction. These BMPs could include, but would not be limited to:

- Sediment barriers (silt fence or straw bales)
- Temporary detention basins
- Grade stabilization with seed and mulch
- Geotextile slope stabilization

The privatization alternative would have minimal impact on geomorphology. Areas where demolition and construction could occur are on lands that have been previously cleared and graded. Any impacts to soils would be minor and limited to the privatized FamCamp area.

4.2.2 No-Action Alternative

There would be no changes to the housing at Keesler AFB, Sandhill Landing, and to the FamCamp. As a result, no impacts to geomorphology or soils would be anticipated from the No-Action Alternative.

4.3 Hydrology

4.3.1 Privatization Alternative

There would be no changes to the privatized housing, so no impacts to hydrology would result in these areas.

Should the PO decide to develop the privatized FamCamp area, any direct impacts to hydrology in the privatized FamCamp area would be negligible. No net increase in impervious surface would be anticipated, and the amount of impervious surface could decrease as a result of removing recreational vehicle parking pads. Use of BMPs, as described for soil disturbance, during demolition and construction would minimize the potential for indirect impacts to hydrology from increased runoff. Should new construction occur, post-construction BMPs, such as detention basins and infiltration areas, would be implemented to prevent an increase in stormwater runoff after construction.

The privatization alternative would have minor impacts on hydrology.

4.3.2 No-Action Alternative

There would be no changes to the housing at Keesler AFB, Sandhill Landing, and to the FamCamp. As a result, no impacts to hydrology would result from the No-Action Alternative.

4.4 Water Quality

4.4.1 Privatization Alternative

There would be no changes to the privatized housing, so no impacts to water quality would result in these areas.

Typical household quantities of herbicides, pesticides, and fertilizers for yard maintenance may be stored in housing units, but these would not be expected to differ from pre-privatization levels. The PO would maintain the Keesler AFB contract with a licensed commercial provider for pest control and landscaping on all privatized housing. The commercial provider would be required to implement BMPs to prevent excess chemicals from leaching into the groundwater and entering the bay.

Impacts on water quality could result from construction activities in the privatized FamCamp area that result in soil disturbance and exposed soil, creating the possibility for

the downslope transport of sediment and soil-bound pollutants into the nearby detention pond. Potential water quality impacts would be temporary and limited to the duration of construction. Appropriate construction stormwater BMPs, as noted in Section 4.2, would be used to contain or treat stormwater to prevent off-site impacts to water quality. Because the amount of impervious surface is not expected to increase and could decrease, no post-construction impacts to water quality are anticipated. Any impacts to water quality would be temporary and minor.

The privatization alternative would have minor impacts on water quality.

4.4.2 No-Action Alternative

There would be no changes to the housing at Keesler AFB, Sandhill Landing, and to the FamCamp. As a result, no impacts to water quality would result from the No-Action Alternative.

4.5 Biological Resources

4.5.1 Privatization Alternative

4.5.1.1 Impacts to Common Flora and Fauna

There would be no changes to the privatized housing, so no impacts to common flora and fauna would be anticipated in these areas.

Any impacts to vegetation in the privatized FamCamp area would be limited to the immediate demolition and construction sites and would be limited to maintained landscaped vegetation that would be replaced during final landscaping of the area. Any impacts to wildlife would be limited to temporary displacement during construction. Any impacts to common flora and fauna would likely be minor.

There is the possibility of incidental animal mortality during construction. However, FamCamp is in an area of high vehicle traffic and pedestrian activity. Large aggregations of animals would not be expected. Any losses would not seriously affect regional animal population levels. Impacts would be minor.

The privatization alternative would have minor impacts to biological resources.

4.5.1.2 Impacts to Sensitive Species

There would be no changes to the privatized housing on Keesler AFB, so no impacts to sensitive species would be anticipated at Parcels A through D.

The housing areas do not contain habitat used by birds protected by the MBTA and no impacts to migratory birds would be expected. It is expected that bald eagles would avoid use of areas where human activity is high. The bald eagle has not been documented from the housing areas historically and it is not expected that it would begin using these areas. No impacts to bald eagles would be expected.

There would be no changes to the privatized housing at Sandhill Landing, so no direct impacts to sensitive species would be anticipated. The requirement to implement RPMs and

T&Cs transferred to Keesler AFB from the Navy. After privatization, Keesler AFB and the PO would continue to implement the RPMs and T&Cs as required by the BO (Appendix C). The RPMs include:

1. Reduce on-site noise and visual disturbance that may affect cranes on the adjacent Refuge.
2. Reduce disturbance and pollution effects on nesting cranes.
3. Reduce likelihood that housing personnel will intrude onto adjacent Refuge.

The T&Cs include:

1. The Navy should ensure that a fence having a minimum height of 8 feet is installed on a 30-foot setback line which parallels the boundary between the project area and the Refuge before construction commences. The fence would not have to be constructed in areas that contain wetlands with heavy vegetation that form a natural barrier.
2. The natural border of trees and shrubs should be left intact between the fence and Refuge boundary, and the 30-foot setback area augmented with additional native trees and shrubs. The species type and density of planting should be coordinated with Refuge personnel. This barrier will satisfy the noise and visual disturbance requirements and the 100-yard human disturbance barrier (constituent element).
3. Heavy and/or loud construction, including framing, roofing, paving, etc., should not take place during the cranes' nesting season (March 1 through June 30). Site improvements, such as landscaping, utility work, etc., may not take place within 300 feet of the Refuge boundary during the nesting season. Interior housing work may be performed at any time on the property.
4. The Navy should develop information packets for potential housing personnel to make them aware of the Mississippi sandhill crane, its protected status, and the potential impact of trespassing onto the Refuge and make them aware of the burn maintenance program administered by Refuge personnel.
5. The Navy must report the progress of the above terms and conditions on an annual basis until initial construction (Phases 1 and 2) is complete and every 5 years thereafter. Reports will be forwarded to the Refuge Manager and the Service's Field Offices in Daphne, AL and Jackson, MS.

Because of the level of development and human activity, there is limited habitat value for sensitive species in the areas where housing would be privatized. Continued implementation of the RPMs and T&Cs at Sandhill Landing by Keesler AFB and the PO would prevent any impacts to the Mississippi sandhill crane from operation of the privatized housing. Any impacts to sensitive species from the privatization alternative would be negligible.

4.5.1.3 Impacts to Wetlands

There would be no changes to the privatized housing after transfer, so no impacts to wetlands adjacent to privatized housing would occur. There are no wetlands in or adjacent

to the FamCamp area. Therefore, no impacts to wetlands would result from the privatization alternative.

4.5.2 No-Action Alternative

4.5.2.1 Impacts to Common Flora and Fauna

There would be no changes to the housing at Keesler AFB, Sandhill Landing, and to the FamCamp. As a result, no impacts to flora and fauna would be anticipated from the No-Action Alternative.

4.5.2.2 Impacts to Sensitive Species

There would be no changes to the housing at Keesler AFB and the FamCamp. As a result, no impacts to sensitive species would be anticipated in these areas.

There would be no changes to the housing at Sandhill Landing, so no impacts to sensitive species would be anticipated. Keesler AFB would continue to implement the RPMs and T&Cs identified for the privatization alternative to offset impacts to the Mississippi sandhill cranes' critical habitat.

No change from current conditions with regard to sensitive species would occur and no impacts to sensitive species would be expected.

4.5.2.3 Impacts to Wetlands

There would be no changes to the housing at Keesler AFB, Sandhill Landing, and to the FamCamp. As a result, no impacts to wetlands would be anticipated from the No-Action Alternative.

4.6 Safety and Occupational Health

4.6.1 Privatization Alternative

There would be no changes to the privatized housing, so no impacts to safety and occupational health would be anticipated in these areas.

Any impacts in the privatized FamCamp area would be associated with worker safety and building demolition. Workers would have the potential for accidents as a result of operating heavy equipment during demolition activities.

Demolition workers would use appropriate protection and would follow Occupational Safety and Health Administration (OSHA) standards and procedures. The demolition contractor would be responsible for ensuring that all contractor employees (and subcontractors) comply with all applicable OSHA standards. Therefore, the safety and occupational health of demolition workers and other persons in the demolition areas would not be impacted.

Job Safety Assessments would be prepared prior to performing the work, and the workers would review and sign these documents before working on the job site. This would minimize the potential to encounter unknown site conditions and operational practices.

After the transfer of management duties, the PO would be responsible for pest management. Pest management would include regular inspection and treatment of houses by a certified pesticide applicator for insects and vermin. Geese could be a nuisance in the Back Bay area and can contribute to health and safety hazards through aggressive behavior and deposition of excrement. Because the PO would assume responsibility for and implement appropriate pest management, no adverse impacts to health or safety would be expected.

The privatization alternative would have negligible impacts on safety and occupational health.

4.6.2 No-Action Alternative

There would be no changes to the housing at Keesler AFB, Sandhill Landing, and to the FamCamp. As a result, no impacts to safety and occupational health would be anticipated from the No-Action Alternative.

4.7 Air Quality

4.7.1 Privatization Alternative

There would be no changes to the privatized housing, so no impacts to air quality would be anticipated in these areas.

In the privatized FamCamp area, a minor short-term impact to air quality would be expected during demolition and construction. Air quality impacts could occur from dust carried off-site and combustion emissions from construction equipment. The primary risks from blowing dust particles relate to human health and human nuisance values. Fugitive dust can contribute to respiratory health problems and create an inhospitable working environment. Deposition on surfaces can be a nuisance to those living or working downwind.

Measures that would be implemented to reduce or eliminate fugitive dust emissions would include the following:

- *Sprinkling/Irrigation*. Sprinkling the ground surface with water until it is moist is an effective dust control method for haul roads and other traffic routes (Smolen et al., 1988). This practice can be applied to almost any site. When suppression methods involving water are used, care would be exercised to minimize over-watering that could cause the transport of mud onto adjoining roadways, ultimately increasing the dust problem.
- *Vegetative Cover*. In areas not expected to handle vehicle traffic, vegetative stabilization of disturbed soil is often desirable. Vegetation provides coverage to surface soils and slows wind velocity at the ground surface, thus reducing the potential for dust to become airborne.
- *Mulch*. Mulching can be a quick and effective means of dust control for recently disturbed areas.

The privatization alternative would have temporary and minor impacts to air quality.

4.7.2 No-Action Alternative

There would be no changes to the housing at Keesler AFB, Sandhill Landing, and to the FamCamp. As a result, no impacts to air quality would be anticipated from the No-Action Alternative.

4.8 Hazardous Materials

4.8.1 Privatization Alternative

There would be no change in use and storage of HMs following privatization. Typical household quantities of cleaners and solvents, herbicides, pesticides, and fertilizers may be stored in privatized housing units, but this would not be expected to differ from pre-privatization levels.

The privatization alternative would have no impact on HM.

4.8.2 No-Action Alternative

There would be no changes to the housing at Keesler AFB, Sandhill Landing, and to the FamCamp. As a result, no impacts to HM would be anticipated from the No-Action Alternative.

4.9 Cultural Resources

4.9.1 Privatization Alternative

There would be no changes to the privatized housing, so no impacts to cultural resources would be anticipated in these areas.

No additional impacts to cultural resources in the privatized FamCamp area are anticipated under the privatization alternative. All construction would take place in previously developed areas. No new areas would be cleared or graded.

The privatization alternative would have no impact on cultural resources.

4.9.2 No-Action Alternative

There would be no changes to the housing at Keesler AFB, Sandhill Landing, and to the FamCamp. As a result, no impacts to cultural resources would be anticipated from the No-Action Alternative.

4.10 Socioeconomics

4.10.1 Privatization Alternative

Demolition and construction activities in the privatized FamCamp area would result in a negligible short-term benefit to the local economy. Construction-related jobs and secondary spending related to construction would provide a temporary negligible benefit in the region due to the small size of the area and limited nature of the construction.

The transfer of operation and ownership of housing units and the associated recreational facilities would have a negligible impact on the local economy. These positions are held by civilian contract personnel and the jobs would remain in the private sector.

The transfer of operation and ownership of housing units and the associated recreational facilities would have no impact on local housing or population. The housing levels and population levels would remain the same.

The Air Force would realize a long-term benefit from the privatization. Economic analyses conducted by DoD have indicated that there would be a reduced cost to the military resulting from privatization of MFH.

The privatization alternative would have temporary and permanent positive impacts on socioeconomics and minimal negative impact.

4.10.2 No-Action Alternative

There would be no changes to the housing at Keesler AFB, Sandhill Landing, and to the FamCamp. As a result, no impacts to socioeconomics would be anticipated from the No-Action Alternative.

4.11 Environmental Justice and Protection of Children

4.11.1 Privatization Alternative

There would be no change in the use of Parcels A through D and Sandhill Landing, except that some units may be offered to non-military persons if occupancy is low. There are no minority or low-income population concentrations in the vicinity of the areas proposed for privatization. There would be no potential to disproportionately impact minority or low income populations

Privatization and subsequent operation of the housing areas by the PO would not create any environmental health or safety risks to children. The FamCamp area would be secured to deter unauthorized access during demolition and construction should the PO choose to construct recreational amenities in this area. Consideration of child safety would be included in the design and construction of any recreational amenities that may be built by the PO. No environmental health or safety risks to children would be created by demolition and construction in the FamCamp area.

4.11.2 No-Action Alternative

There would be no changes to the housing at Keesler AFB and Sandhill Landing. The FamCamp would operate as it does now. As a result, no impacts to environmental justice or children would result from the No-Action Alternative.

4.12 Traffic Flow

4.12.1 Privatization Alternative

There would be no changes to the privatized housing, so no impacts to traffic flow would be anticipated in these areas.

There would be a temporary increase in traffic in the FamCamp during demolition and construction. This increase in traffic could result in local short-term delays. To the extent practicable, removal of demolition debris and delivery of construction materials would be conducted outside of peak traffic periods. Any traffic impacts from demolition and construction would be minor and temporary.

The privatization alternative would have minimal impact on traffic flow.

4.12.2 No-Action Alternative

There would be no changes to the housing at Keesler AFB, Sandhill Landing, and to the FamCamp. As a result, no impacts to traffic flow would be anticipated from the No-Action Alternative.

4.13 Utility Infrastructure

4.13.1 Privatization Alternative

Ownership of the utilities and utility infrastructure (electricity, natural gas, water, sewer, and solid waste services) in the privatized housing units at Keesler AFB and in the FamCamp would be transferred to the PO. The exceptions to the ownership of utility infrastructure would be two main electric service lines on Keesler AFB, overhead powerlines owned by Mississippi Power, water well houses, water mains, and water towers on Keesler AFB, and a sewer force main and #240 lift station on Keesler AFB. Housing units would be individually metered for all utilities and the residents would be billed directly. The privatization alternative would result in the transfer of ownership of the utility services to the PO and no impact to utility service would be expected. The PO would be responsible for operation and maintenance. Since there will be no change in population levels no change in the demand for utility service is expected.

Ownership of the utilities and utility infrastructure (electricity, water, sewer, and solid waste services) in the privatized housing at Sandhill Landing housing area would be transferred to the PO. Housing units would be individually metered and the residents would be billed directly. The privatization alternative would result in transfer of ownership of the utility services to the PO and no impact to utility service would be expected. The PO would be responsible for operation and maintenance. Since there will be no change in population levels no change in the demand for utility service is expected.

4.13.2 No-Action Alternative

There would be no changes to the housing at Keesler AFB, Sandhill Landing, and to the FamCamp. As a result, no impacts to utility infrastructure would be anticipated from the No-Action Alternative.

4.14 Cumulative Impacts

Federal regulations implementing the NEPA (40 CFR Sections 1500–1508) require that the cumulative impacts of a Proposed Action be assessed. NEPA defines a cumulative impact as an "impact on the environment which results from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions" (40 CFR § 1508.7). Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. This analysis considers the impacts of the Proposed Action in conjunction with other projects along the Mississippi Gulf coast, Mississippi Sound, and the northern Gulf of Mexico and in the vicinity of Keesler AFB.

The following sections address the potential for cumulative impacts resulting from interaction of the Proposed Action with other past, present, and reasonably foreseeable actions occurring since Hurricane Katrina. This powerful storm altered the barrier islands, coastal Mississippi, and the floor of the Gulf of Mexico. In conjunction with other major hurricanes (Ivan, Dennis, and Rita) in 2004 and 2005, earlier projects would have no potential for interaction with the Proposed Action.

4.14.1 Other Keesler AFB Actions

Impacts from the privatization alternative would be limited to parcels A through D and Sandhill Landing. Privatization of parcels A through D would not interact with other Keesler AFB actions, unless those actions would extend to the privatized properties. Sandhill Landing is 22 miles east of Keesler AFB and there are no proposed projects on Keesler AFB that would extend into this area.

Keesler AFB is considering a project to build a foot/bike path connecting the privatized parcels with the main part of the base, which could reduce vehicular traffic and associated air emissions. In addition, enhanced biking opportunities would promote healthier living for military members and their families. There could be positive cumulative impacts to traffic flow and safety and occupational health.

No other Keesler AFB projects have been identified that would interact with housing privatization.

4.14.2 Recovery from Hurricane Katrina

Work will continue for years to clean up and rebuild following the landfall of Hurricane Katrina in August 2005. Katrina recovery efforts could interact with the Proposed Action and produce cumulative effects.

The Mississippi Department of Transportation is implementing improvements to U.S. Hwy 90 in Pascagoula following damage from the storm. While the improvements are being implemented, the amount of traffic congestion in the area around Keesler AFB will be increased, which would be a short-term nuisance to residents in the Pascagoula area. Once the improvements are complete, traffic flow in the Pascagoula area would be enhanced. These transportation improvements would result in a positive cumulative impact on traffic.

Hurricane Katrina recovery will continue to involve use of construction equipment and heavy machinery and will result in substantial placement of trash and debris in landfills.

Because all of this work will occur separate from the privatization alternative, there would be no potential for interaction with the Proposed Action, except for socioeconomic resources. This work contributes to the regional economic recovery from Hurricane Katrina. Some of the results of the economic improvement will be community resource improvement, such as increased fire and police support. This would be a positive cumulative impact for the residents of the privatized housing.

4.14.3 Gulfport and Pascagoula Shipping Channel Deepening

Plans are in place to increase the size of the Gulfport Federal Navigation Channel and the Pascagoula Harbor Navigation Channel. Each of these two commercial channels is more than 10 miles from Keesler AFB or Sandhill Landing. The shipping channel projects and privatization actions at Keesler AFB would be separated in time as well as in distance. There is little potential for interaction of these shipping channel projects with the housing privatization. No significant direct cumulative impacts to biological resources, water chemistry, or oceanographic resources are expected. Modification of the Gulfport and Pascagoula channels would aid in recovery of commercial shipping, which also would contribute to regional economic recovery from Hurricane Katrina.

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5.0 Plan, Permit, and Ownership Requirements

There is a regulatory requirement to obtain a construction stormwater general permit if 1 acre or more of land is disturbed during construction (MDEQ, 2008). It is likely that the privatization alternative would involve over 1 acre of ground disturbance in the FamCamp and thus a stormwater permit would be required.

Prior to implementing demolition of existing structures and construction of recreational amenities in the former FamCamp area, the PO would coordinate with the Mississippi Department of Marine Resources to assure that these actions would comply with the Coastal Zone Management Act of 1972.

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6.0 List of Preparers

Russell Short/Senior Project Manager/29 years of experience/Master of Science

Rich Reaves/Environmental Scientist/15 years of experience/Ph. D.

Betsy Jorgensen/Environmental Scientist/4 years of experience/Bachelor of Science

David Dunagan/Technical Editor/29 years of experience/Master of Arts

Laura Galloway/GIS Analyst/5 years of experience/Master of Science

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7.0 List of Contacts

Keesler Air Force Base

Victor Bertrand, CSC/CEV (Environmental)

Richard Brock, 81 TRW/JA (Judge Advocate)

George Daniel, CSC/CEV (Environmental)

Eddie Ellis, CSC/CEV (Environmental)

Terry James, CSC/CEV (Environmental)

Janet Lanier, CSC/CEV (Environmental)

Kathleen Moon, 81 CES/CERR (Real Property)

Michael Reese, 81 CES/CEH (Housing)

Eddie Richards, Booz|Allen|Hamilton/Keesler Housing Privatization Contracted Project Manager

Kathy Scoggins, 81 CES/CERR (Real Property)

Byron Self, 81 SFS/SSS (Security)

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APPENDIX A

Sandhill Landing Transfer to Keesler AFB in December 2008

DEPARTMENT OF THE NAVY
BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE WEST
1455 FRAZEE RD, SUITE 900
SAN DIEGO, CA 92108-4310

11011
Ser BPMOW/bja/0001

Mr. Jeffrey P. Blevins
Realty Specialist
Air Force Real Property Agency
143 Billy Mitchell Boulevard
Suite 1
San Antonio, Texas 78226-1816

Dear Mr. Blevins:

This is in reference to the United States Air Force's request for the transfer of the Sandhill Landing Housing at the former Naval Station Pascagoula, Mississippi, consisting of 160 housing units and other improvements on approximately 74.64 acres of land.

Enclosed is the fully executed DD Form 1354 to complete this transfer along with all supporting documents.

Our point of contact in this matter is Ms. Brenda Archer, Real Estate Specialist, at (843) 743-2146, brenda.archer@navy.mil.

Sincerely,

Esther P Ewell

ESTHER P. EWELL
Real Estate Contracting Officer

Copy to:
Commanding Officer
Attn: Doug Mercer (ARE/CNRSE N46I)
Naval Facilities Engineering Command Southeast
Bldg. 919, Floor 2, Room 29
NAS Jacksonville, FL 32212

ORIGINAL

TRANSFER AND ACCEPTANCE OF MILITARY REAL PROPERTY

Form Approved
OMB No. 0704-0188

PLEASE DO NOT RETURN YOUR COMPLETED FORM TO THE ABOVE ORGANIZATION.

1. FROM *(Installation/Activity/District and ZIP Code)*
NAVY BRAC PMO SE
4130 Faber Place Drive, Suite 202
North Charleston, SC 29405

2. DATE PREPARED *(YYYYMMDD)*
20081105

3. PROJECT/JOB NUMBER
N/A

4. SERIAL NUMBER
N/A

5. TO *(Installation/Activity/Service, ZIP Code & INSNO)*
81st Civil Engineer
508 L Street
Keesler AFB, MS 39354-2115

6. SITE/INSNO/ NAME
Sandhill Landing Family Housing

7. CONTRACT NUMBER(S)
N/A

8. DRAWING NUMBER(S)
N/A

9. TRANSACTION DETAILS

a. [ ] NEW CONST. [X] EXISTING FAC. [ ] CAPITAL IMP. [ ] OTHER *(Specify)*

b. [ ] PHYS. COM. AVAIL. [ ] BENF/O [ ] PARTIAL BOD [ ] FINANCIAL COM. [X] OTHER *(Specify)* Transfer

c. [ ] DRAFT [X] FINAL [ ] INTERIM

d. **EFFECTIVE DATE** *(YYYYMMDD)* 20081229

10. ITEM NO.	11. FACILITY NO.	12. CATEGORY CODE	13. CATCODE DESCRIPTION	14. TYPE	AREA 16. UNIT OF MEAS 1	AREA 16. TOTAL QUANTITY UM 1	OTHER 17. UNIT OF MEAS 2	OTHER 18. TOTAL QUANTITY UM 2	19. COST	20. FUND SOURCE	21. FUND ORG	22. INTEREST CODE	23. ITEM REMARKS
01		91110	Land, Purchase	P	AC	74.64			1900000.00			01	
02		71170	Family Housing - Approp FY 1970 and after	P	SF		FA	160.00	18715936.00			01	
03		85110	Road	P	SY	16025.00			878681.00			01	
04		85220	Sidewalk	P	SY	4576.00			158101.00			01	
05		85220	Sidewalk (Paths/Trails)	P	SY	4621.00			153234.00			01	
06		85235	Driveway	P	SY	4222.00			204678.00			01	
07		75010	Tennis Court	P	EA	1.00			32463.00			01	
08		75010	Court, Recreational (Basketball)	P	EA	3.00			97389.00			01	
09		75057	Misc Outdoor Rec Facility (Tot Lots/ Playgrounds)	P	EA	6.00			89804.00			01	

24. STATEMENT OF COMPLETION. The facilities listed hereon are in accordance with maps, drawings, and specifications and change orders approved by the authorized representative of the using agency except for the deficiencies listed on the reverse side.

a. TRANSFERRED BY *(Typed Name and Signature)*
ESTHER P. EWELL Esther P Ewell

b. DATE SIGNED *(YYYYMMDD)*
20081229

c. TITLE *(DPW/RPAO)*
Real Estate Contracting Officer

25.a. ACCEPTED BY *(Typed Name and Signature)*
Kathleen I. Ferguson
KATHLEEN I. FERGUSON, P.E.

b. DATE SIGNED *(YYYYMMDD)*
20081216

c. TITLE *(DPW/RPAO)*
Deputy Assistant Secretary of the Air Force (Installations)

26. PROPERTY VOUCHER NUMBER

TRANSFER AND ACCEPTANCE OF MILITARY REAL PROPERTY

Form Approved
OMB No. 0704-0188

PLEASE DO NOT RETURN YOUR COMPLETED FORM TO THE ABOVE ORGANIZATION.

1. FROM *(Installation/Activity/District and ZIP Code)*
NAVY BRAC PMO SE
4130 Faber Place Drive, Suite 202
North Charleston, SC 29405

2. DATE PREPARED *(YYYYMMDD)*: 20081105

3. PROJECT/JOB NUMBER: N/A

4. SERIAL NUMBER: N/A

5. TO *(Installation/Activity/Service, ZIP Code & INSNO)*
81st Civil Engineer
508 L Street
Keesler AFB, MS 39354-2115

6. SITE/INSNO/NAME: Sandhill Landing Family Housing

7. CONTRACT NUMBER(S): N/A

8. DRAWING NUMBER(S): N/A

9. TRANSACTION DETAILS

a. [ ] NEW CONST. [X] EXISTING FAC. [ ] CAPITAL IMP. [ ] OTHER *(Specify)*

b. [ ] PHYS. COM. AVAIL. [ ] BENF/O [ ] PARTIAL BOD [ ] FINANCIAL COM. [X] OTHER *(Specify)* Transfer

c. [ ] DRAFT [X] FINAL [ ] INTERIM

d. EFFECTIVE DATE *(YYYYMMDD)*: 2008 12 29

10. ITEM NO.	11. FACILITY NO.	12. CATEGORY CODE	13. CATCODE DESCRIPTION	14. TYPE	AREA: 15. UNIT OF MEAS 1	AREA: 16. TOTAL QUANTITY UM 1	OTHER: 17. UNIT OF MEAS 2	OTHER: 18. TOTAL QUANTITY UM 2	19. COST	20. FUND SOURCE	21. FUND ORG	22. INTEREST CODE	23. ITEM REMARKS
10		87110	Storm Drain Disposal	P	LF	2308.00			28621.00			01	
11		83210	San Sewage Main	P	LF	9643.00			454185.00			01	
12		84210	Water Distribution Main	P	LF	8672.00			279325.00			01	
13		87210	Fence, Boundary	P	LF	7309.00			142366.00			01	
14		87215	Fence, Interior	P	LF	10748.00			93494.00			01	
15		84450	Retention Ponds	P	EA	885.00			813670.00			01	

24. STATEMENT OF COMPLETION. The facilities listed hereon are in accordance with maps, drawings, and specifications and change orders approved by the authorized representative of the using agency except for the deficiencies listed on the reverse side.

a. TRANSFERRED BY *(Typed Name and Signature)*: STHER P. EWELL *Esther P Ewell*

b. DATE SIGNED *(YYYYMMDD)*: 20081229

c. TITLE *(Area Eng, Base Eng, DPW)*: al Estate Contracting Officer

25.a. ACCEPTED BY *(Typed Name and Signature)*: *Kathleen I. Ferguson* KATHLEEN I. FERGUSON, P.E.

b. DATE SIGNED *(YYYYMMDD)*: 20081216

c. TITLE *(DPW/RPAO)*: Deputy Assistant Secretary of the Air Force (Installations)

26. PROPERTY VOUCHER NUMBER

27. CONSTRUCTION DEFICIENCIES *(attach blank sheet for continuations)*	28. PROJECT REMARKS *(attach blank sheet for continuations)*
	See Page 4 for Project Remarks

INSTRUCTIONS

GENERAL. This form has been designed and issued for use in connection with the transfer of military real property between the military departments and to or from other government agencies. It supersedes ENG Forms 290 and 2908 (formerly used by the Army and Air Force) and NAVDOCKS Form 2317 (formerly used by the Navy).

Existing instructions issued by the military departments relative to the preparation of DD Form 1354 are applicable to this revised form to the extent that the various items and columns on the superseded forms have been retained. The military departments may promulgate additional instructions, as appropriate.

For detailed instructions on how to fill out this form, please refer to Unified Facilities Criteria (UFC) 1-300-08, dated 17 December 2003.

SPECIFIC DATA ITEMS.

1. **From.** Name and address of the transferring agency.

2. **Date Prepared.** Date of actual preparation. Enter all dates in YYYYMMDD format (Example: March 31, 2004 = 20040331).

3. **Project/Job Number.** Project number on a DD Form 1391 or Individual Job Order Number.

4. **Serial Number.** Sequential serial number assigned by the preparing organization (e.g., 2004-0001).

5. **To.** Name and address of the receiving installation, activity, and service of the Real Property Accountable Officer (RPAO).

6. **Site/INSNO and Name.** Site or installation number and site name where the constructed facility is located.

7. **Contract Number(s).** Contract number(s) for this project.

8. **Drawing Number(s).** Drawing number(s) or CAD identifier(s) for project components.

9. **Transaction Details.**
   a. Type of Transaction. Mark (X) only one box.
   b. When/Event. When or event causing preparation of DD Form 1354. X only one box.
   c. Version. Draft, interim, or final DD Form 1354. X only one box.
   d. Effective Date. Effective date for transaction; start date for depreciation.

10. **Item Number.** Use a separate item number for each facility, no item number for additional usages.

11. **Facility Number.** Unique facility number identified in Real Property Inventory.

12. **Category Code.** The category code describes the facility usage.

13. **Catcode Description.** The category code name which describes the facility usage.

14. **Type.** Type of construction: P for Permanent; S for Semipermanent; T for Temporary.

15. **Area: Unit of Meas 1.** Area unit of measure; use SF, SY, AC only.

16. **Total Quantity UM 1.** The total area for the measure identified in Item 15. Use negative numbers for demolition.

17. **Other: Unit of Meas 2.** Unit of Measure 2 is the capacity or other measurement unit (e.g., LF, MB, EA, etc.).

18. **Total Quantity UM 2.** The total capacity/other for the measure identified in Item 17.

19. **Cost.** Cost for each facility; for capital improvements to existing facilities, show amount of increase only.

20. **Fund Source.** Enter the Fund Source Code for this item, i.e., 01-MILCON, 02-BRAC, 03-O&M, etc.

21. **Funding Organization.** Enter the code for the organization responsible for replacing this facility at the end of its useful life, i.e., 00-Army Active, 01-Army Reserve, 02-Army National Guard, etc.

22. **Interest Code.** Enter the code that reflects government interest or ownership in the facility, i.e., 01-Owned by DoD, 02-Owned by Federal Government (non-DoD), etc.

23. **Item Remarks.** Remarks pertaining only to the item number identified in Item 10; show cost sharing.

24. **Statement of Completion.** Typed name, signature, title, and date of signature by the responsible transferring individual or agent.

25. **Accepted By.** Typed name, signature, title, and date of signature by the RPAO or accepting official.

26. **Property Voucher Number.** Next sequential number assigned by the RPAO in voucher register.

27. **Construction Deficiencies.** List construction deficiencies in project during contractor turnover inspection.

28. **Project Remarks.** Project level remarks, continuation of blocks, and used to explain "other" entries in Item 9.

28. PROJECT REMARKS

Sandhill Landing Family Housing Area consists of 74.64 acres of land and improvements and land was acquired by Warranty Deed on 3 May 2002. Housing was constructed in two phases in 2004 and 2005 and consists of 94 three-bedroom units and 66 four-bedroom units for a total of 160 units. The property is depicted on a survey and legal description attached hereto as Exhibit "A".

An Environmental Condition of Property (ECP) was completed by the Navy on 18 September 2006. A copy of the ECP is incorporated by reference.

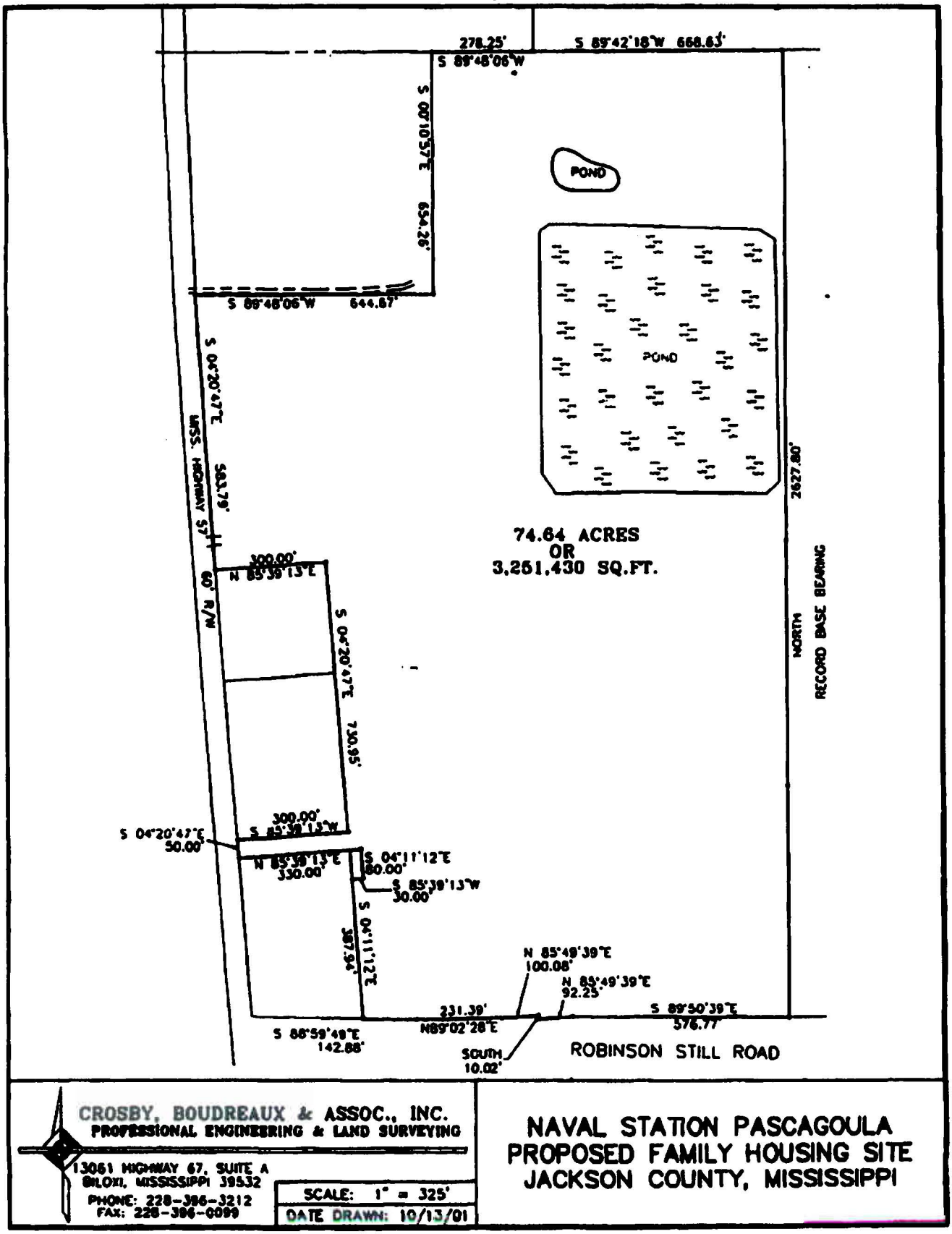
The U.S. Department of the Air Force will be responsible for all future environmental action on this site. Any additional investigations and remediation of areas of disposal, spills, or storage of waste or materials, whether disclosed in this document or discovered in the future will be the sole responsibility of the Air Force.

The Sandhill Family Housing Area shall be used by the Air Force as rental housing. The Air Force may as a part of a military family housing privatization project convey to a private developer (a) a fee interest in the housing units and associated improvements located within the Sandhill Family Housing Area, and (b) a fifty-year leasehold interest in the underlying real property (the "Lease"). The Air Force may also, to the extent permitted by applicable laws, grant, as a term and condition of the Lease, an option to purchase the ownership of the fee interest in the underlying property in the event Congress approves the closure of Keesler Air Force Base on or after January 1, 2029 under the Base Closure and Realignment Act, 10 U.S.C. Sec. 2687 P.L. 101-510, as amended by Public Law No, 107-107, or under any other base closure or realignment law. Such option shall not survive the expiration or earlier termination of the Lease. If (a) the Air Force does not enter into the Lease before January 1, 2013, or (b) the Lease is terminated or expires in accordance with its terms before January 1, 2029, then the Air Force shall provide written notification to the Navy of such event, and in the Navy's sole discretion, the Navy may request the return of the Sandhill Family Housing Area. The Air Force shall then transfer the housing units and underlying real property back to the Navy for appropriate BRAC disposal.

Initial: EPE & KTerry

Navy Air Force

29Dec08 16DEC08



CROSBY, BOUDREAUX & ASSOC., INC.
PROFESSIONAL ENGINEERING & LAND SURVEYING
13061 HIGHWAY 67, SUITE A
BILOXI, MISSISSIPPI 39532
PHONE: 228-396-3212
FAX: 228-396-0099

SCALE: 1" = 325'
DATE DRAWN: 10/13/01

NAVAL STATION PASCAGOULA
PROPOSED FAMILY HOUSING SITE
JACKSON COUNTY, MISSISSIPPI

NAVAL STATION PASCAGOULA
PROPOSED FAMILY HOUSING SITE
SCHOONER HARBOR VENTURES, INC.

LEGAL DESCRIPTION

A PARCEL OF LAND SITUATED IN THE SOUTHEAST ¼ OF THE NORTHEAST ¼ OF SECTION 7, THE NORTHEAST ¼ OF THE SOUTHEAST ¼ OF SECTION 7, THE SOUTHWEST ¼ OF THE NORTHWEST ¼ OF SECTION 8, AND IN THE NORTHWEST ¼ OF THE SOUTHWEST ¼ OF SECTION 8, ALL IN TOWNSHIP 7 SOUTH, RANGE 7 WEST, JACKSON COUNTY, MISSISSIPPI, AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT A CONCRETE MONUMENT FOUND AT THE NORTHEAST CORNER OF THE SOUTHEAST ¼ OF THE NORTHEAST ¼ OF SAID SECTION 7, (MISSISSIPPI STATE PLANE COORDINATES – NORTH 346921.24, EAST 1021361.34); THENCE SOUTH 89DEGREES 48 MINUTES 06 SECONDS WEST 278.25 FEET TO A ½" IRON ROD (NORTH 346918.54, EAST 1021083.11); THENCE SOUTH 00 DEGREES 10 MINUTES 57 SECONDS EAST 654.26 FEET TO A CONCRETE MONUMENT (NORTH 346264.31, EAST 1021089.28); THENCE SOUTH 89 DEGREES 48 MINUTES 06 SECONDS WEST 644.67 FEET TO A CONCRETE MONUMENT LYING ON THE EAST MARGIN OF MISSISSIPPI HIGHWAY 57 (NORTH 346258.05, EAST 1020444.64); THENCE ALONG SAID EAST MARGIN OF MISSISSIPPI HIGHWAY 57, SOUTH 03 DEGREES 25 MINUTES 22 SECONDS EAST 166.21' TO A ½" IRON ROD (NORTH 346092.20, EAST 1020455.60); THENCE FURTHER ALONG SAID EAST MARGIN OF MISSISSIPPI HIGHWAY 57, SOUTH 04 DEGREES 20 MINUTES 47 SECONDS EAST 583.79 FEET TO A CONCRETE MONUMENT (NORTH 345510.38, EAST 1020503.48); THENCE NORTH 85 DEGREES 39 MINUTES 13 SECONDS EAST 300.00 FEET TO A CONCRETE MONUMENT (NORTH 345534.98, EAST 1020802.47); THENCE SOUTH 04 DEGREES 20 MINUTES 47 SECONDS EAST 730.95 FEET TO A CONCRETE MONUMENT (NORTH 344806.50, EAST 1020862.41); THENCE SOUTH 85 DEGREES 39 MINUTES 13 SECONDS WEST 300.00 FEET TO A ½" IRON ROD LYING ON THE EAST MARGIN OF MISSISSIPPI HIGHWAY 57 (NORTH 344781.89, EAST 1020563.42); THENCE ALONG SAID EAST MARGIN OF MISSISSIPPI HIGHWAY 57, SOUTH 04 DEGREES 20 MINUTES 47 SECONDS EAST 50.00 FEET TO A ½" IRON ROD (NORTH 344732.06, EAST 1020567.52); THENCE NORTH 85 DEGREES 39 MINUTES 13 SECONDS EAST 330.00 FEET TO A CONCRETE MONUMENT (NORTH 344759.12, EAST 1020896.41); THENCE SOUTH 04 DEGREES 11 MINUTES 12 SECONDS EAST 80.00 FEET TO A ½" IRON ROD (NORTH 344679.38, EAST 1020902.75); THENCE SOUTH 85 DEGREES 39 MINUTES 13 SECONDS WEST 30.00 FEET TO A ½" IRON ROD (NORTH 344676.92, EAST 1020872.85); THENCE SOUTH 04 DEGREES 11 MINUTES 12 SECONDS EAST 387.94 FEET TO A CONCRETE MONUMENT LYING ON THE NORTH MARGIN OF ROBINSON STILL ROAD (NORTH 344290.20, EAST 1020903.59); THENCE ALONG SAID NORTH MARGIN OF ROBINSON STILL ROAD, SOUTH 88 DEGREES 59 MINUTES 49 SECONDS EAST 142.88 FEET TO A ½" IRON ROD(NORTH 344288.59, EAST 1021046.46); THENCE FURTHER ALONG SAID NORTH MARGIN, NORTH 89 DEGREES 02 MINUTES 28 SECONDS EAST 231.39 FEET TO A ½" IRON ROD (NORTH 344293.90, EAST 1021277.79); THENCE FURTHER ALONG SAID NORTH MARGIN, NORTH 85 DEGREES 49 MINUTES 39 SECONDS EAST 100.08 FEET TO A ½" IRON ROD (NORTH 344301.81, EAST 1021377.56); THENCE FURTHER ALONG SAID NORTH MARGIN, SOUTH 10.02 FEET TO A ½" IRON ROD (NORTH 344291.79, EAST 1021377.62); THENCE FURTHER ALONG SAID NORTH MARGIN, NORTH 85 DEGREES 49 MINUTES 39 SECONDS EAST 92.25 FEET TO A ½" IRON ROD (NORTH 344299.08, EAST 1021469.58); THENCE FURTHER ALONG SAID NORTH MARGIN, SOUTH 89 DEGREES 50 MINUTES 39 SECONDS EAST 576.77 FEET TO A CONCRETE MONUMENT (NORTH 344301.11, EAST 1022046.35); THENCE NORTH 2627.80 FEET TO A ½" IRON ROD (NORTH 346928.86, EAST 1022029.94); THENCE SOUTH 89 DEGREES 42 MINUTES 18 SECONDS WEST 668.63 FEET TO THE POINT OF BEGINNING, CONTAINING 74.64 ACRES OR 3,251,430 SQUARE FEET.

APPENDIX B

Agency Correspondence

Agency Correspondence

Keith Taniguchi, Chief Habitat Conservation Division
USFWS Region 4
1875 Century Blvd, Suite 200
Atlanta, GA 30345

Phil Bass
Mississippi Department of Environmental Quality
PO Box 20305
Jackson, MS 39289

Mr. Thomas H. Waggener, SHPO
Mississippi Department of Archives and History
PO Box 571
Jackson, MS 39205

USFWS Jackson Field Office
Ray Aycock, Field Supervisor
6578 Dogwood View Pkwy, Suite A
Jackson, MS 39213

Jerry Brashier
Mississippi Department of Marine Resources
1141 Bay view Ave, Suite 101
Biloxi, MS 39530-1613

Department of the Army
Attn: Susan Rees
Mobile District, Corps of Engineers
P.O. Box 2288
Mobile, Alabama 36628-0001

Office of Federal Grants (Clearing House)
Attn: Janet Riddell, Dept of Finance and Administration
1301 Wool Folk Blvd, Suite E
501 NW Street,
Jackson, MS 39201

Mississippi Department of Wildlife, Fisheries, and Parks
Dennis Riecke
1505 Eastover Dr.
Jackson, MS 39211-6374

CH2M HILL
Northpark 400
1000 Abernathy Road
Suite 1600
Atlanta, GA 30328
Tel 770.604.9095
Fax 770.604.9183

January 28, 2009

Agency From Agency Correspondence List

Subject: Privatization of Military Family Housing at Keesler AFB

Dear :

CH2M HILL is preparing an Environmental Assessment (EA) to address potential environmental and socioeconomic impacts of proposed privatization of military family housing owned by Keesler AFB. We are providing a draft description of proposed action and alternatives (DOPAA) to your agency for review. Your office also will be provided with a copy of the draft EA for further review and comment prior to the issuance of the decision document for this project. Please forward your comments addressing NEPA concerns in the DOPAA to Betsy Jorgensen, CH2M HILL, Northpark 400, 1000 Abernathy Road, Suite 1600, Atlanta, GA 30328; office phone 678-530-4408 or e-mail elizabeth.jorgensen@ch2m.com.

Sincerely,

CH2M HILL

Elizabeth Jorgensen
Environmental Scientist

MISSISSIPPI
DEPARTMENT OF MARINE RESOURCES

February 4, 2009

Betsy Jorgensen
CH2M HILL
Northpark 400
1000 Abernathy Road
Suite 1600
Atlanta, GA 30328

RE: DMR-090376

Dear Ms. Jorgensen:

The Department of Marine Resources in cooperation with other state agencies is responsible under the Mississippi Coastal Program (MCP) for managing the coastal resources of Mississippi. Proposed activities in the coastal area are reviewed to insure that the activities are in compliance with the MCP.

The Department has received a request to review a proposal by Keesler AFB to privatize existing military housing in Biloxi, Harrison County, Mississippi. The Department has no objections provided there are no direct or indirect impacts to coastal wetlands and no coastal program agency objects to the proposal. If wetland impacts are anticipated, an application should be submitted to this office for review. Thank you for the opportunity to comment on your project.

For more information or questions concerning this correspondence, contact Jennifer Clark with the Bureau of Wetlands Permitting at (228) 523-4111 or jennifer.clark@dmr.ms.gov.

Sincerely,

Willa J. Brantley
Bureau Director, Wetlands Permitting

WJB/jlc

MISSISSIPPI DEPARTMENT *of* ARCHIVES AND HISTORY

MDAH

HISTORIC PRESERVATION
Ken P'Pool, director • Jim Woodrick, acting director
PO Box 571, Jackson, MS 39205-0571
601-576-6940 • Fax 601-576-6955
mdah.state.ms.us

November 19, 2008

Mr. Teddy M. James, YF-2
Chief, Environmental Flight
81 CES/CEV
508 L Street
Keesler AFB, Mississippi 39534-2115

RE: Environmental Assessment for Military Family Housing Privatization at Keesler Air Force Base, MDAH Project Log #10-159-08, Harrison County

Dear Mr. James:

We have reviewed your request for a cultural resources assessment, received on October 30, 2008, for the above referenced project in accordance with our responsibilities under Section 106 of the National Historic Preservation Act and 36 CFR Part 800. After reviewing the information provided, it would not appear that any of the 1,038 housing units are listed in or eligible for listing in the National Register of Historic Places. However, there may be some units that are fifty (50) years old or older that have not been recognized or recorded. If such is the case, we recommend that the SHPO be consulted prior to any alterations/demolitions for these properties. With that recommendation, we have no objection with the draft EA.

If we can be of further assistance, please do not hesitate to contact us at (601) 576-6940.

Sincerely,

Jim Woodrick
Review and Compliance Officer

FOR: H.T. Holmes
State Historic Preservation Officer

c: Clearinghouse for Federal Programs
Bill Gatlin

APPENDIX C

Biological Opinion for Management of Mississippi Sandhill Crane at Sandhill Landing

READ

United States Department of the Interior

FISH AND WILDLIFE SERVICE
P. O. Drawer 1190
Daphne, Alabama 36526

IN REPLY REFER TO:
02-0009a

February 12, 2002

Mr. L. M. Pitts
Head, Environmental Planning Branch
Department of the Navy
Southern Division
Naval Facilities Engineering Command
P.O. Box 190010
2155 Eagle Drive
North Charleston, S.C. 29419-9010

Dear Sir:

This document transmits the Fish and Wildlife Service's (Service) biological opinion based on our review of the proposed new family housing for Naval Station Pascagoula (NAVSTA) north of Interstate 10 on Highway 57 (Site 28) in Jackson County, Mississippi, and its effects on the Mississippi sandhill crane (*Grus canadensis pulla*) in accordance with section 7 of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

This biological opinion is based on the *Environmental Assessment for the Proposed Construction of 188 Family Housing Units at Naval Station Pascagoula, Pascagoula, Mississippi,* meetings, discussions, e-mail, and written correspondence with the Navy, the property owners, the Mississippi Sandhill Crane National Wildlife Refuge (Refuge), colleagues, and Ecology and Environment, Inc., a consultant for the project. A complete administrative record of this consultation is on file in this office. If you have any questions about this biological opinion please contact Patric Harper at (251) 441-5181 extension 34, and refer to log number 02-0009.

Consultation History

Thirty potential building sites for the Navy's proposed housing development were initially identified (see Fig. 2-1 in the EA). Upon completion of their screening process, this number was reduced to the following five:

Alternative 1 - Site 7 (Gautier High School)
Alternative 2 - Site 8 (Red Bird Lane)
Alternative 3 - Site 28 (Highway 57/I-10)
Alternative 4 - Site 29 (Rosewood)
Alternative 5 - Site 30 (Singing River Island)

On February 1, 2001 the Refuge and the Service's Daphne Field Office (DFO) received a request from the consultant for input concerning issues or concerns related to the development of the EA. DFO's response recommended that surveys for the following Federally listed species be conducted, if suitable habitat existed, on Sites 7, 8, 28, and 29: red-cockaded woodpecker (*Picoides borealis*), bald eagle (*Haliaeetus leucocephalus*), gopher tortoise (*Gopherus polyphemus*), eastern indigo snake (*Drymarchon corais couperi*), and Louisiana quillwort (*Isoetes louisianensis*). Additionally, we recommended that the following species be considered at Site 30: piping plover (*Charadrius melodus*), brown pelican (*Pelecanus occidentalis*), loggerhead sea turtle (*Caretta caretta*), Kemp's ridley sea turtle (*Lepidochelys kempii*), and green sea turtle (*Chelonia mydas*). The Refuge responded that Sites 8, 28, and 29 might have an impact on the Refuge but additional information was required.

In an April 4, 2001 letter to the consultant, the Service expressed concern, based on additional information received from the Navy and recommendations by the Refuge, that proposed development might have direct and/or indirect impacts on the Mississippi sandhill crane, its designated critical habitat, or the Refuge proper if Alternatives 2, 3 or 4 (Sites 8, 28 and 29, respectively) were implemented. We indicated that development of either Alternative 1 or 5 (Sites 7 or 30, respectively) would not affect the crane or the Refuge.

During an April 19, 2001 meeting, it was noted that Alternative 5 was not a preferred site due to several considerations including other planned uses and site constraints. Impacts to the remaining proposed sites and possible minimization efforts, such as fencing and setbacks, were also discussed. The possibility that development of Site 28, the Navy's proposed alternative, would result in adverse modification of critical habitat and/or "take" of a nesting pair of Mississippi sandhill cranes was presented. Discussion included the potential for offsetting the impacts to critical habitat by purchasing other lands which would then be deeded to the Service and maintained for crane use. It was noted that these "other" lands would have to meet certain requirements that included, but were not limited to: adequate quality and quantity of habitat, proximity to the existing Refuge boundary, occurring within the Refuge's acquisition boundary, current or potential crane use, susceptibility to development, etc.

Continuing discussions led to generation of a list of sites that the Refuge considered as high-priority for acquisition and determining a system for rating the value and suitability of potential "offsetting" sites (as well as the impact site). The Refuge stated that the list was not all-inclusive and that they would entertain any reasonable offsite proposals. The Navy determined that due to the complexity of this exercise, other site attributes, and necessary timelines for proposed action implementation, there was an uncertainty regarding the eligibility of Site 28 and, therefore, it began to re-evaluate the other four alternatives. The Service's letter of June 14, 2001 indicated, based on site visits and discussions with the Refuge, that, due to lack of onsite critical habitat and by incorporating adequate property boundary setbacks and fencing, there would be no impact to the crane, its habitat or the Refuge if Site 8 (Alternative 2) was chosen for development.

The owners of Site 28 (Messrs. Steven Carter and Lawrence Rumsey), in an effort to expedite the sale of their property to the Navy, began to investigate the possibility of purchasing offsite habitat to be subsequently conveyed to the Service in order to offset the impacts of the Navy's housing development on Mississippi sandhill crane designated critical habitat. During a meeting on June 27, 2001, the owners requested that the Refuge evaluate four of the high-priority locations.

On July 24, 2001 the owners of Site 28 submitted a proposal that included donation to the Service of onsite portions of Site 28 and a 10 acre portion of one of the offsite locations mentioned above. The owners were informed that this was not a viable alternative because once the housing development was constructed, all of Site 28 would be essentially lost to crane use.

In a August 3, 2001 letter, the Service provided additional information to the Navy for its use in preparing the EA. This letter included onsite reviews by the Refuge of the four proposed offsite locations and seven preliminary options, based on the Refuge's Simplified Habitat Evaluation, that might offset the impacts to Site 28.

On August 17, 2001 a meeting was held at NAVSTA among the owners of Site 28, the Navy, and the Service to discuss a proposal that included one of the options (Option 4 - 89 acres of Mr. John Ford's property on Tract 78). Although the Site 28 owners indicated that a verbal agreement had been reached with Mr. Ford, and as such the process could proceed, it was discovered that the acreage figure was not what had been agreed upon. Therefore, the owners of Site 28 were informed that a new proposal would be required.

Subsequently, Option 3 (77 acres of Ms. Rena Ford's property) was proposed by the owners of Site 28 to offset the Navy's housing development impacts to critical habitat of the Mississippi sandhill crane. A contract (Option for Exchange/Conveyance of Real Property) to that effect was signed on August 29, 2001 and a copy received by the Service on September 5, 2001.

The Service agreed, by letter dated September 20, 2001, to enter into, and expedite to the degree possible, formal consultation with the Navy on the construction of new family housing for Naval Station Pascagoula (NAVSTA) north of Interstate 10 on Highway 57 (Site 28) in Jackson County, Mississippi.

BIOLOGICAL OPINION

DESCRIPTION OF PROPOSED ACTION

The proposed action is the construction of 188 units of Navy family housing and ancillary facilities (in two phases), including future operation, maintenance, and upgrades, on one of five alternative site locations identified in the *Final Planning Study to Identify Potential Navy Housing Sites for 188 Family Housing Units, Naval Station Pascagoula (NAVSTA), Jackson County, Mississippi.*

The proposed site, as determined in the Navy's Environmental Assessment, is described as Alternative 3 which is located adjacent to the Mississippi Sandhill Crane National Wildlife Refuge and in designated critical habitat for the endangered Mississippi sandhill crane (*Grus canadensis pulla*). The housing units are required to be within a 30-minute drive time of NAVSTA Pascagoula. The new family housing will be multi-family housing units, including 53 two-bedroom units, 84 three-bedroom units, and 51 four-bedroom units, constructed of wood or metal frame, or masonry with stucco or vinyl siding. The proposal also includes covered parking, covered patios, privacy fencing, exterior storage, and recreational facilities.

Alternative 3 involves an area identified as "Site 28" located north of Interstate 10 on Highway 57 in Jackson County, Mississippi (see Figure 3-3, in the EA). This location, highly suitable for the proposed housing unit, is in critical habitat designated for the Mississippi sandhill crane. The site, situated between the Refuge's "Ocean Springs" and "Gautier" management units, encompasses 75.1 acres, of which 10.7 are delineated as jurisdictional wetlands, 9.7 are an open water pond; and 54.7 are considered upland. Of the upland acreage, 45 acres are deemed foraging habitat for the endangered crane. The pond has been used for roosting habitat by the cranes. Documented observations reveal that a peninsula in the pond was used for nesting in 1997 and 1998.

The action area for a project is the entire area that is directly and indirectly impacted by a proposed action. The immediate and future affects of this project will not only directly impact Site 28 itself, but also indirectly impact offsite crane habitat on the adjacent Refuge because of disturbance. The project will also affect, in a beneficial way, an offsite location that is to be protected and managed in order to offset the construction impacts. Due to the limited range of the Mississippi sandhill crane (approximately 153,600 acres), the offsite disturbance, and potential movement of affected cranes throughout their range, we are identifying the action area for this project as the entire range of the Mississippi sandhill crane. This broad range is taken from the Recovery Plan and, therefore, includes some areas that are not utilized by the crane.

Land-use activities proposed by the Navy to minimize disturbance to the species (see Section 4.3.1 in the EA) include creating a barrier between the development and the Refuge, educating the residents about potential impact of trespassing onto the Refuge, and avoiding heavy construction activities during the crane's nesting season (March 1 through June 30) consistent with final resolution of issue.

Simultaneous with sale of Site 28 to the Navy, the owners (of Site 28) would purchase and then convey to the Service a separate parcel of land in order to offset the impacts caused by the Navy's construction of its housing development in designated critical habitat for the Mississippi sandhill crane. This separate parcel of land is known as the Ford property (Ms. Rena Ford), or Tract 77, or the South 77 acres of Government Lots 5 & 6, or the South 77 acres of the South ½ of the Southwest 1/4, Section 2, Township 7 South, Range 7 West, Jackson County, Mississippi. Tract 77 is immediately adjacent to the Refuge along the northeast border of the Gautier Unit.

Other sites that could also be purchased and conveyed to the Service to offset the Navy's impacts include: 89 acres of Tract 78, which is adjacent to the above Tract 77 - to the east (noted in previous correspondence as Option 4) or 30 acres of Gary Young property (T6S R7W Sec 27) and 113 acres of Mary Miller property (T6S R8W Sec 35) (Option 7).

STATUS OF THE SPECIES/CRITICAL HABITAT

Species/critical habitat description

Sandhill cranes (*Grus canadensis*) resemble great blue herons (*Ardea herodias*). A major distinguishing characteristic is that cranes are completely gray. When standing erect, cranes are about four feet tall. Male and female cranes are similar in appearance. All cranes have long necks, and adult cranes possess a naked red crown. The species vocalizations are loud and clattering. Mississippi sandhill cranes (*G. c. pulla*) are a nonmigratory subspecies which have become reproductively isolated from other sandhill cranes. The only known wild population is on and near the Mississippi Sandhill Crane National Wildlife Refuge in Jackson County, Mississippi. The birds present range is restricted to an area defined by the Pascagoula River (east), to about the Jackson County line (west), to about Simmons Bayou (south), to 4 miles north of the town of Vancleave (north).

Mississippi sandhill cranes were listed as rare in the 1968 list of Rare and Endangered Fish and Wildlife of the United States. After being described as a subspecies in 1972, the Mississippi sandhill crane was added to the U.S. List of Endangered Fish and Wildlife on June 4, 1973 38 Fed. Reg. 14678. The first recovery plan was written in 1976 and the latest revision (3rd) completed in 1991. In 1974 the Nature Conservancy purchased 1,709 acres which the Service acquired in 1975 to establish the Mississippi Sandhill Crane National Wildlife Refuge. Additional lands have been acquired such that the current total acreage of the Refuge is 19,273 acres. Reducing the likelihood of extinction will require a self-sustaining population of cranes and suitable habitat. Original estimates suggested the Refuge crane population may require a minimum of about 130 to 170 birds, consisting of about 60 nesting cranes per breeding season, for a continuous period of at least 10 years (USFWS, 1991). Long term self-sustenance and stability will require a genetically viable population, high levels of natural recruitment, and cessation of the captive release program.

Critical habitat for the Mississippi sandhill crane was designated on September 8, 1977 42 Fed. Reg. 39985. (USFWS,1977). Current Service policy requires that the primary constituent elements of critical habitat be defined. Primary constituent elements are those physical and biological features of a landscape that a species needs to survive and reproduce. However, the Final Rule that determined critical habitat for the Mississippi sandhill crane occurred prior to establishment of this policy. Nevertheless, for the purposes of this Biological Opinion, we now define the primary constituent elements to be those elements required to support appropriate foraging, roosting, and nesting habitat isolated from human disturbance by a minimum of 100

yards. The areas delineated for critical habitat cover about 26,000 acres of which 19,273 acres are currently protected on the Refuge. Most known breeding, summer feeding, and roosting sites are included in the 26,000 acres of critical habitat. During the last 5-10 years, surveys indicate that approximately 90% of crane breeding sites and approximately 70% of their roosting sites occur in critical habitat. Since 1965, approximately 9% of documented nesting has been located off the Refuge. Scattered winter feeding areas are located both on the refuge (approximately 80%) and on neighboring farmlands outside of designated critical habitat. These sites cover a large area, and sporadic use of these areas by cranes vary with the planted crops. Although included within the critical habitat boundary, not all such areas actually possess all of the constituent elements of critical habitat.

Life history

These cranes are long lived. In the wild they do not reach reproductive age until around 4 to 5 years of age (sometimes not until their "teens"), have large nesting territories, and frequently raise only one chick per year (U.S. Fish and Wildlife Service 1991).

Savannahs are the optimal habitat of the Mississippi sandhill crane and are inhabited year round. These wet grasslands are predominated by wiregrass (*Aristida spp.*), with scattered longleaf pine (*Pinus palustris*), slash pine (*P. elliottii*), and cypress (*Taxodium ascendens*) trees. Other associated plants include pitcher plants (*Sarracenia spp.*), sundew (*Drosera spp.*), clubmoss (*Lycopodium alopecuroides*), and pipeworts (*Eriocaulon spp.*). Cranes also utilize wooded depressions (swamps) dominated by cypress, longleaf, and slash pine trees with an understory of swamp cyrilla (*Cyrilla racemiflora*), buckwheat tree (*Cliftonia monophylla*), wax myrtle (*Myrica cerifera*), and several species of holly (*Ilex spp.*) (U.S. Fish and Wildlife Service 1991).

Cranes roost in shallow water in savannas, edges of wooded depressions or swamps, and ponds. Paired cranes roost near the nest during the breeding season. Mississippi sandhill cranes prefer to nest as far from sources of disturbance as possible. Ideally this is in open area of grasses and sedges adjacent to perennial shallow water. Such an area, surrounded by trees and shrubs, is typically large enough for the cranes to see potential predators and allow flight. Due to the economic growth of coastal Mississippi, construction of miles of access roads, and plantation pine forestry techniques, most of the original ideal nesting habitat has been destroyed.

Crane feeding habits vary with the seasons. During the spring, summer, and early fall, cranes consume both plant and animal matter equally, including roots, tubers, fruits, insects, earthworms, other invertebrates, and occasionally a few frogs and other small vertebrates. During the cooler months, cranes switch some of their preferred items diet to products of upland agriculture including corn, seeds, and insects found in farms, pastures, and Refuge food plots. Chufa is planted in the spring or summer for the cranes on the Refuge and then cool season grasses and legumes are planted in the fall. As a result of human population growth, some agricultural areas in the vicinity of the Refuge that are now used by cranes for foraging (including some that have

been utilized for decades and even generations), are being converted to high density residential or commercial development that is not suitable for cranes.

Population dynamics

Population estimates in 1929, 1949, and 1969 indicated that the crane population has been less than 100 since 1929 with evidence of continuing decline through 1980 (Seal, et al. 1992). Since inception of the Refuge in 1975 and formal designation of critical habitat for the Mississippi sandhill crane (USFWS, 1977), the population levels have increased from a low of 30-35 individuals and 5-6 nesting pairs to over 100 birds and 25 nesting pairs. Supplementation of the population began in 1981 and has continued every year since. Approximately 95% of the current free ranging population is from captive hatched or captive bred birds (S. Hereford, pers. comm.). The population has been maintained purposely from 100-130 birds over the last 5-6 years (S. Hereford, pers. comm.). Mapping of the habitat requirements of the crane (in the early 1990s) indicated that a population of about 130-150 birds was the maximum capacity of the refuge at that time, even with intensive site management (Seal, et al. 1992). Changes on the Refuge in the past 10 years (including expansion) dictate that the population model should be re-run in order to obtain a more accurate evaluation of the crane's current situation and to update the requirements for a self-sustaining population (S. Hereford, pers. comm.). Ultimately the carrying capacity of the Refuge will be limited by the habitat available for nesting territories. The addition of protected, managed, high quality crane habitat, particularly potential nesting areas, to the Refuge is vital for the recovery of the species.

Status and distribution

The Mississippi sandhill crane is a nonmigratory endangered subspecies which has become reproductively isolated from other sandhill cranes and is in danger of extinction. Major reasons for the decline include loss of habitat, human predation, and decreased natural recruitment. Mississippi sandhill cranes were once found all along the Gulf Coast with a total population possibly into the thousands. During the 1950's thousands of acres of the crane's favored savannah habitat were drained and converted to slash pine plantations. Dense understories developed underneath the mature pine trees, and the once open, undisturbed habitat became unsuitable for cranes. The latter part of the 20th century brought a human population explosion to the Mississippi coast, including residential and commercial development and infrastructure utilities to support that growth. Eight paved highways now transect or border the crane's range. These roads have further depleted habitat, caused pollution problems, and provided public access to the cranes, all of which have caused problems for the species.

Analysis of the species/critical habitat likely to be affected

The Service anticipates that Mississippi sandhill cranes will be adversely affected by the proposed project due to the displacement of one nesting pair and the disruption of normal behavior patterns for any Mississippi sandhill cranes that may utilize Site 28 or adjacent Refuge lands. 75 acres of designated critical habitat on Site 28, and varying amounts of acreage on the adjacent Refuge, will also likely be lost, directly and indirectly, through construction of the housing project, normal everyday housing operations, and future maintenance and construction. Indirect effects, due to audio or visual disturbance from the project site, on cranes that may be utilizing adjacent Refuge lands are difficult to quantify. This is due to the uncertainty of the distance that any particular disturbance may affect nearby cranes. The Service believes that the worst case scenario would be the temporary disruption of feeding or loafing activities (no adjacent nesting habitat) on a maximum of eight Mississippi sandhill cranes that may or may not be utilizing approximately 22 - 35 acres of adjacent Refuge property during any such disruption (S. Hereford, pers. comm.).

The project will beneficially affect 77 acres of offsite crane habitat (the Rena Ford property) because, if the proposal is approved, the Refuge would receive and manage those acres to offset the impacts to critical habitat on Site 28. Potential impacts will be considered further in the remaining sections of this opinion.

ENVIRONMENTAL BASELINE

This section is an analysis of the effects of past and ongoing human and natural factors leading to the current status of the species, its habitat, and ecosystem, within the action area. Because the species range is wholly contained within the action area, this analysis is based on the preceding rangewide status discussion but will highlight baseline conditions at the affected areas (Site 28, Refuge land adjacent to Site 28 and the Ford property).

Status of the species within the action area

The impact area (Site 28) encompasses 75 acres or 0.3% of the entire designated critical habitat for the Mississippi sandhill crane and approximately 0.05% of the crane's total range (action area). Currently, the impact area contains good quality crane habitat inadvertently created and maintained by human involvement. This would include the borrow pit which has become a shallow water pond for roosting and nesting and the clearing and maintenance of open foraging habitat. This site contains all the necessary features for critical habitat, which will be lost by development of the site.

One pair of cranes has been documented nesting at the Site 28 pond. They nested once in 1997 and twice in 1998 with only the first nest in 1998 resulting in a hatch. The chick survived for about a month after which it was presumably lost to predation. This data results in a 33%

hatchling production rate and 0% fledgling production rate at Site 28. According to the Population and Habitat Viability Assessment (PHVA), the best chance for recovery of this subspecies is with 60% hatchling production and 20% juvenile mortality (Seal, et al. 1992). Therefore, this site (28) does not appear to be as productive as those on the Refuge that had an average fledgling production rate of 33% prior to 1992 (Seal, et al. 1992) and from 1993-2001 a fledgling production rate of approximately 16.5% (S. Hereford, pers. comm., based on preliminary results). Whether the low numbers from Site 28 are due to encroaching development, predation, low viability, incomplete data, or other factors could only be determined through an extensive study of the nest site.

The amount of Refuge acreage that will be indirectly impacted by the adjacent project is difficult to quantify or qualify. Construction of the housing project, normal everyday housing operations, and future maintenance and construction will result in varying amounts of audio and visual disturbances that could affect crane behavior. The acreage impacted may be influenced by time of day, time of year, level, duration, and frequency of disturbance, etc. As above, the Service believes that the worst case scenario would be the temporary disruption of crane activities on approximately 22 - 35 acres of the adjacent Refuge.

Factors affecting species environment within the action area

Previously described development has historically affected the species and its habitat throughout the action area (cranes' range), and continues to do so (with the exception of lands on the Refuge). This includes development or other use of lands within the cranes range that are not designated as critical habitat (approximately 83% of their range is not designated as critical habitat).

Site 28 is located in unincorporated Jackson County but in the City of Gautier proposed annexation area. The property has frontage on both Highway 57 and Robinson Still Road. Originally, the property was 83 acres, but 8 acres have been sold as outparcels to private developers. These parcels are being developed commercially (one as a gas station, and the other two, as yet, unknown). Site 28 was recently re-zoned to Planned Unit Development (PUD) to accommodate a 350-unit apartment complex proposed by the current owner. Because funding was not secured, no construction commenced. The PUD zoning classification allows for flexibility in land use activities (residential, commercial, office) and permits multi-family residential housing. Low density residential development occurs south of the property, and west of the site is Highway 57 and a KOA campground.

Past and present impacts of all Federal, state, or private actions and other human activities on Site 28 appear to be limited to the construction of a borrow pit for construction of I-10, haying, and, for the past few years, regular bushhogging. There have been no known impacts to Refuge property adjacent to Site 28 or to the Ford property.

There are no known unrelated Federal actions that may affect the cranes and have previously undergone formal or early section 7 consultation or known state or private actions that are contemporaneous with the consultation in process.

EFFECTS OF THE ACTION

Factors to be considered

The action is within designated critical habitat for the Mississippi sandhill crane and immediately adjacent to the Mississippi Sandhill Crane National Wildlife Refuge. The action will directly and indirectly impact critical habitat and what would be considered constituent elements. The duration of the effect will be a permanent event. The disturbance frequency will be variable. Early construction (Phases 1 and 2) will result in an initial disturbance, with normal everyday housing operations, and future maintenance and construction resulting in varying levels of disturbance for the life of the project.

Analyses for effects of the action

The construction of the proposed housing development on Site 28 would directly and indirectly impact 75.1 acres of land within the Mississippi sandhill crane's critical habitat boundary. Of the total area, 10.7 acres are delineated as jurisdictional wetlands, 9.7 acres are an open water pond, and 54.7 acres are considered upland. Direct impacts include approximately 45 acres of uplands for the footprint of the housing development. All remaining acreage onsite will be indirectly impacted and completely lost as suitable habitat for the crane, for the life of the project (as long as the housing development exists), due to human activities that preclude crane use, such as noise, vibration, pollution, and visual disturbance. Therefore, no critical habitat will remain onsite once proposed construction has begun. Cranes will lose foraging and loafing habitat in the upland areas and roosting and nesting habitat in the pond.

This project will have indirect impacts to the adjacent critical habitat, on Refuge property, through increases in domestic animals, human activity, and noise. As stated above, the Service believes that the worst case scenario of offsite indirect effects would be the temporary disruption of crane activities on approximately 22 - 35 acres of the adjacent Refuge. These impacts will be minimized because the applicant has agreed to include a setback and to place a fence along the entire boundary between the development and the Refuge and augment the existing natural buffer of shrubs and trees which will decrease noise and visual disturbance.

The loss of Site 28 would, if it was the only facet of the project, impede recovery of the species by reducing the number of active nests (see Section 2.2 of the Recovery Plan), decrease feeding and roosting habitat (Section 2.3) and decrease winter foraging habitat (Section 2.4).

To offset the impacts to critical habitat on Site 28, the Service would receive 77 acres of offsite high priority crane habitat (the Rena Ford property). The Refuge would manage this land in perpetuity and when managed with adjacent refuge lands, the additional cost would be minimal compared to the habitat gained (S. Keen, pers. comm.). This land, with management, would have a net positive effect on the recovery of the Mississippi sandhill crane. The Ford tract is adjacent to the Refuge and within the Acquisition Boundary, which would be a gain for species recovery (see Part II, Section 2.1 of the Recovery Plan). The Ford tract was previously identified by the Refuge as high priority for acquisition and, if obtained, would help in filling the gap to the next closest Refuge unit. This area was rated as having high management and protection urgency by the Mississippi Natural Heritage Program's assessment of priority conservation sites in coastal Mississippi based on biodiversity and special species. This site was known to be utilized by cranes for foraging and loafing and may still be used today. Although much of the site is in good condition for cranes, the open pine savanna portion can be upgraded with regular controlled burn management. Other management actions can also be taken so that this site would contain all of the necessary constituent elements for designation as critical habitat (e.g., creation of a pond and access road, S. Hereford, pers. comm.).

Additional factors that would aid in recovery include: the Ford property has potential nesting habitat (Section 2.2); with management, the site would increase and improve the amount of feeding and roosting habitat (Section 2.3); it would increase winter foraging habitat (Section 2.4); it would reduce human contact with nesting cranes (Section 3.1), and it would likely lead to reduced mortality (Section 3.5). Obtaining this site will also aid in the Implementation Schedule of the Recovery Plan by meeting the following Tasks: 2.1 - Acquire other suitable habitat (Priority 2 - An action that must be taken to prevent a significant decline in species population/habitat quality, or some other significant negative impact short of extinction), 2.2 - Improve nesting habitat (Priority 2), 2.4 - Increase winter foraging habitat (Priority 3 - All other actions necessary to meet recovery objective), 3.1 - Minimize disturbance (Priority 1 - An action that must be taken to prevent extinction or to prevent the species from declining irreversibly in the foreseeable future) and 3.5-Reduce mortality (Priority 1).
The latter tasks (disturbance and mortality) particularly support the proposed action. Site 28 is becoming more disturbed by encroaching development and, since there already have been recent attempts to develop this property, it is likely that it could become developed in the foreseeable future. Even if development does not occur on this property, it is quite probable that the site will not be maintained by the new ownership for optimal crane usage. If the site is not maintained in its current state, or better, then it is reasonable to assume that cranes would cease to utilize the site for foraging, roosting or nesting. Therefore, the Service believes that Site 28 will be lost for suitable crane habitat and usage in the foreseeable future even without the proposed action. Recent lack of hatching and loss of fledglings on Site 28 appears to be due to factors (e.g., predation) that the Refuge is unable to remedy because it has no management authority on the site. On the other hand, the Ford property, if acquired, will be protected by the Refuge and see an increase in habitat quality and, hopefully, crane usage. The Ford tract is adjacent to a large portion of the Refuge which has a potential nesting territory, but has not been utilized due to lack of adequate shallow water habitat. If acquired, the Ford tract will have an access road built, a

pond(s) created, and burn management enacted, such that, the entire nesting territory may become more likely to be used by cranes. The Ford property will also then become available for release of captive-bred juveniles. Acquisition would expand the Refuge's protected and managed lands that contain designated critical habitat, as compared to the current situation involving occupied offsite locations that cannot be protected or managed by the Refuge and may become less and less suitable for cranes. It is hoped that cranes will expand into these new protected sites if/when they abandon the less desirable off-Refuge locations.

In order to determine the appropriate amount of habitat required to offset the impacts to Site 28, the Refuge biologist (together with Florida's non-migratory sandhill crane expert) formulated a model that would score both the impact site and potential offsite locations for crane value. This model, called the Mississippi Sandhill Crane Simplified Habitat Evaluation assumes that: "In general, present important habitat needs appear to be met by wetland/upland complexes isolated from human disturbance, especially during the March-June nesting period. Optimal habitat conditions exist when all requirements occur in close proximity over large contiguous areas." Variables that were utilized in the model include:

CRITICAL HABITAT - area within designated critical habitat boundary.
ACQUISITION BOUNDARY - area within the Refuge's Acquisition Boundary.
NESTING HABITAT - area of nesting habitat, including open wet pine savanna, swamp edge, shallow pond, shallow water from March-May on average, and wet pine scrub restorable to savanna.
ROOSTING HABITAT - area in shallow water (3 - 10" deep), such as ponds, swales, open swamp edges, and shallow marshes.
FORAGING HABITAT - area for feeding, including upland pasture or cropland, pine savanna, and restorable pine scrub.
ISOLATION - area potentially usable by cranes that is at least 100 yards from any existing human disturbance (e.g., roads, high density residential, commercial, industrial).
BUFFER - area adjacent to the Refuge serving as buffer from disturbance.

For a particular site, acreage for each of the variables was multiplied by a weighted factor and the results totaled. This number was then divided by the acreage of that site to obtain points/acre. The score for the impact site was then divided by the score for each proposed offsetting site to obtain the ratio that would determine the amount of acreage necessary at that particular site. By using this methodology it was calculated that the 77 acres of the Ford property would adequately offset the impacts at Site 28. Even though, with management, the Ford site will become even more valuable for crane usage, the evaluation technique determined that it already has more nesting and isolation value (based on acreage) than does Site 28. The only factors that the Ford property was deficient in, roosting and foraging, can be upgraded with standard management practices.

Species' response to a proposed action

The number of individuals affected by the proposed project in the action area is difficult to determine. One nesting pair of Mississippi sandhill cranes, and any others who roost and/or forage at the site and on the adjacent Refuge property, will be displaced by the loss of 75.1 acres of critical habitat. On the other hand, it is hoped that cranes will expand their limits of utilized habitat for foraging, roosting, and nesting into the Ford property, once it has been acquired, enhanced, and managed by the Refuge.

CUMULATIVE EFFECTS

Cumulative effects include the impacts of future state, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

Although the immediate area has little current development, the residential and commercial prospects are high. A sewer line has already been installed to the property on the east side of the highway, with complete water and sewer line installation plans for both sides of the highway currently being drafted (Jackson County Planning Department, pers. comm.). Development is imminent, particularly because this is the last major intersection with I-10 in the county that has not been developed. A gas station has already been constructed on one of the outparcels of the project site and a convenience store and strip mall have been contemplated for this site. Other development interests are apparently waiting only on the utility lines to be installed in order to make their building decisions (Jackson County Planning Department, pers. comm.).

Because the Navy's proposed construction will impact all onsite habitat (Site 28) for the life of the project, for any possible crane usage, there can be no additional future impacts from federal, state, local, or private actions because no critical habitat will remain onsite once proposed construction has begun. The proposed project will also indirectly impact foraging habitat on the Refuge property adjacent to Site 28 and beneficially affect the Ford property. These offsite locations will have no additional future impacts from federal, state, local, or private actions because they are, or will be, owned and protected by the Refuge. Although the Service does not currently know of any particular projects, future state, local, and private development throughout the action area (cranes' range) is reasonably certain to occur (with the exception of lands on the Refuge). This includes development or other use of lands within the cranes range that are not designated as critical habitat.

CONCLUSION

After reviewing the current status of the Mississippi sandhill crane, the environmental baseline for the action area, the effects of the Navy's proposed housing development, the beneficial effects of obtaining additional Refuge land, and the cumulative effects, it is the Service's biological opinion that the proposed action is not likely to jeopardize the continued existence of the Mississippi sandhill crane or destroy or adversely modify designated critical habitat. Although critical habitat will be impacted in one location (Site 28 and adjacent Refuge), it will be enhanced, protected, and managed in another location by acquisition of another property of equivalent or better habitat value. This action will reduce the adverse effect to critical habitat to the point where it will not result in an overall adverse modification of critical habitat. The Service believes that there will be no jeopardy to the continued existence of the crane because the nesting pair of cranes that utilized the project site will presumably relocate to another nesting site, the amount of lost crane habitat is a small percentage of the cranes overall range, and benefits will be realized by acquisition and management of the offsite property.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by Service as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The measures described below are non-discretionary, and must be implemented by the Navy so that they become binding conditions of any grant, permit, agreement, or contract issued to the non-federal sponsor, applicant, or contractor, as appropriate, in order for the exemption in section 7(o)(2) to apply. The Navy has a continuing duty to regulate the activity covered by this incidental take statement. If the Navy: (1) fails to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the grant, permit, agreement, or contract document, and/or (2) fails to retain oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the Navy must report the progress of the action and its

impact on the species to the Service as specified in the incidental take statement. [50 CFR §402.14(i)(3)]

AMOUNT OR EXTENT OF TAKE ANTICIPATED

The Service anticipates take of the Mississippi sandhill crane will be difficult to detect for the following reasons: the nesting pair (those cranes that used the site in 1998 and 1999) may or may not be able to find a suitable location to nest, when conditions were appropriate for them to nest at Site 28, and cranes foraging on the adjacent Refuge property may or may not be disrupted by activities on Site 28. However, the following level of take of this species can be anticipated by the loss of 75.1 acres of critical habitat because this area is used for roosting, foraging and nesting habitat. The Service believes that no more than the displacement of one nesting pair of Mississippi sandhill cranes and the disruption of normal behavior patterns for any cranes that may utilize Site 28 or the adjacent Refuge property will be taken.

EFFECT OF THE TAKE

In the accompanying biological opinion, the Service determined that this level of anticipated take is not likely to result in jeopardy to the species or destruction or adverse modification of critical habitat.

REASONABLE AND PRUDENT MEASURES

The Service believes the following reasonable and prudent measures by the Navy are necessary and appropriate to minimize impacts of incidental take of Mississippi sandhill cranes:

1. Reduce onsite noise and visual disturbance that may affect cranes on the adjacent Refuge.

2. Reduce disturbance and pollution effects on nesting cranes.

3. Reduce likelihood that housing personnel will intrude onto adjacent Refuge.

TERMS AND CONDITIONS

In order to be exempt from the prohibitions of section 9 of the Act, the Navy must comply with the following terms and conditions, which implement the reasonable and prudent measures described above and outline required reporting/monitoring requirements. These terms and conditions are non-discretionary and for the life of the project.

1. The Navy should ensure that a fence having a minimum height of 8 feet is installed on a 30 foot setback line which parallels the boundary between the project area and the Refuge before construction commences. The fence would not have to be constructed in areas that contain wetlands with heavy vegetation that form a natural barrier.

2. The natural border of trees and shrubs should be left intact between the fence and the Refuge boundary, and the 30 foot setback area augmented with additional native trees and shrubs. The species type and density of planting should be coordinated with Refuge personnel. This barrier will satisfy the noise and visual disturbance requirements and the 100 yard human disturbance barrier (constituent element) (but see #3, below).

3. Heavy and/or loud construction, including framing, roofing, paving, etc., should not take place during the crane's nesting season (March 1 through June 30). Site improvements, such as landscaping, utility work, etc., may not take place within 300 feet of the Refuge boundary during nesting season. Interior housing work may be performed at any time on the property.

4. The Navy should develop information packets for potential housing personnel to make them aware of the Mississippi sandhill crane, its protected status, and the potential impact of trespassing onto the Refuge and make them aware of the burn maintenance program administered by the Refuge personnel.

5. The Navy must report the progress of the above terms and conditions on an annual basis until initial construction (Phases 1 and 2) is complete and every five years thereafter. Reports will be forwarded to the Refuge Manager and the Service's Field Offices in Daphne, AL and Jackson, MS.

Upon locating a dead, injured, or sick individual of an endangered or threatened species, initial notification must be made to the Fish and Wildlife Service Law Enforcement Office at Jackson, MS. Additional notification must be made to the Refuge and the Fish and Wildlife Service Ecological Services Field Offices in Daphne, AL and Jackson, MS. Care should be taken in handling sick or injured individuals and in the preservation of specimens in the best possible state for later analysis of cause of death or injury.

The Service believes that no more than the displacement of one nesting pair of Mississippi sandhill cranes and the disruption of normal behavior patterns for any cranes that may utilize Site 28 or the adjacent Refuge property will be taken, as measured by the loss of 75.1 acres of critical habitat, as a result of the proposed action. The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize the impact of incidental take that might otherwise result from the proposed action. If, during the course of the action, this level of incidental take is

exceeded, such incidental take represents new information requiring reinitiation of consultation and review of the reasonable and prudent measures provided. The Navy must immediately provide an explanation of the causes of the taking and review with the Service the need for possible modification of the reasonable and prudent measures.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. The following conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

Install all utility lines for the Navy's proposed housing development, (e.g., telephone, power, TV cable, etc.) underground to eliminate the possibility of collision and mortality to Mississippi sandhill cranes.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

REINITIATION NOTICE

This concludes formal consultation on the Navy's proposed construction of new family housing for Naval Station Pascagoula at Site 28 in Jackson County, Mississippi and its effects on the endangered Mississippi sandhill crane and its designated critical habitat. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or designated critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or designated critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

Sincerely,

Larry E. Goldman
Field Supervisor

cc: SOUTHNAVFACENGCOM (ATTN: Mr. Richard Davis)
NAVSTA Pascagoula, MS (ATTN: Lt. Steve Bukoski)
MSCNWR (ATTN: Ms. Sabrina Keen, Refuge Manager)
FWS, Regional Office, Atlanta, GA (ATTN: Joe Johnston)
FWS, Solicitors Office, Atlanta, GA (ATTN: Mike Stevens)
FWS, Jackson, MS (ATTN: Linda LaClaire and Mike Dawson)

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